OM-1500-18 218 795S

2013–05

Processes

MIG (GMAW) Welding

Flux Cored (FCAW) Welding (Gas-and Self-Shielding)

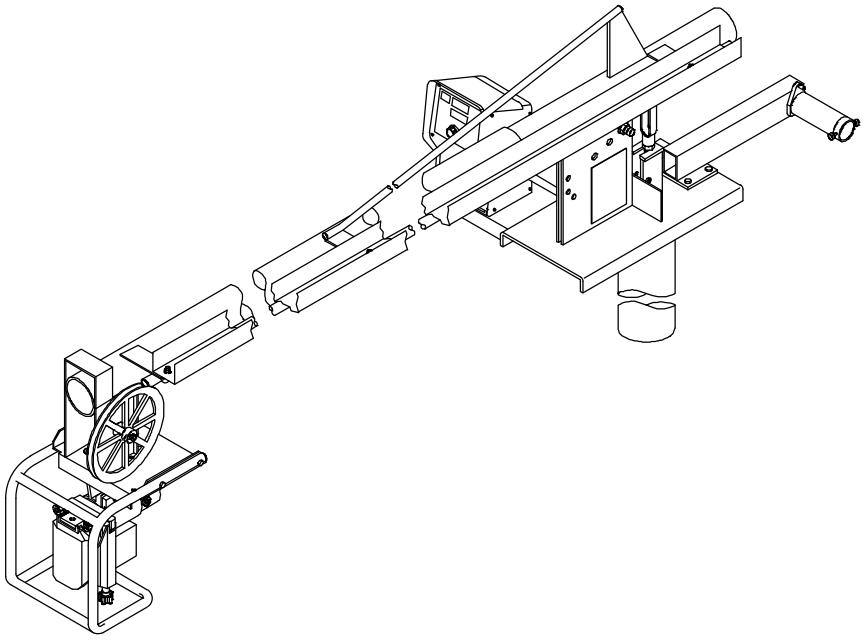
Submerged (SAW) Welding

Description

Wire Feeder

(Use with CV Power Sources)

Single Axcess® Swingarc®



8 ft, 12 ft and 16 ft Boom

OWNER'S MANUAL

File: Advanced Manufacturing Systems

Visit our website at

www.MillerWelds.com/ams

From Miller to You

Thank you and *congratulations* on choosing Miller. Now you can get the job done and get it done right. We know you don't have time to do it any other way.

That's why when Niels Miller first started building arc welders in 1929, he made sure his products offered long-lasting value and superior quality. Like you, his customers couldn't afford anything less. Miller products had to be more than the best they could be. They had to be the best you could buy.

Today, the people that build and sell Miller products continue the tradition. They're just as committed to providing equipment and service that meets the high standards of quality and value established in 1929.

This Owner's Manual is designed to help you get the most out of your Miller products. Please take time to read the Safety precautions. They will help you protect yourself against potential hazards on the worksite.

ISO 9001 REGISTERED QUALITY SYSTEM

Miller is the first welding equipment manufacturer in the U.S.A. to be registered to the ISO 9001 Quality System Standard.

We've made installation and operation quick and easy. With Miller you can count on years of reliable service with proper maintenance. And if for some reason the unit needs repair, there's a Troubleshooting section that will help you figure out what the problem is. The parts list will then help you to decide the exact part you may need to fix the problem. Warranty and service information for your particular model are also provided.

Miller Electric manufactures a full line of welders and welding related equipment. For information on other quality Miller products, contact your local Miller distributor to receive the latest full line catalog or individual specification sheets. **To locate your nearest distributor or service agency call 1-800-4-A-Miller, or visit us at www.MillerWelds.com on the web.**

TRUE BLUE® WARRANTY

Working as hard as you do – every power source from Miller is backed by the most hassle-free warranty in the business.

Miller®

TABLE OF CONTENTS

SECTION 1 – SAFETY PRECAUTIONS - READ BEFORE USING 1
1-1. Symbol Usage 1
1-2. Arc Welding Hazards 1
1-3. Additional Symbols For Installation, Operation, And Maintenance 3
1-4. California Proposition 65 Warnings 4
1-5. Principal Safety Standards 4
1-6. EMF Information 4
SECTION 2 – CONSIGNES DE SÉCURITÉ – LIRE AVANT UTILISATION 5
2-1. Symboles utilisés 5
2-2. Dangers relatifs au soudage à l'arc 5
2-3. Dangers supplémentaires en relation avec l'installation, le fonctionnement et la maintenance 7
2-4. Proposition californienne 65 Avertissements 8
2-5. Principales normes de sécurité 9
2-6. Informations relatives aux CEM 9
SECTION 3 – DEFINITIONS 11
3-1. Additional Safety Symbols And Definitions 11
3-2. Miscellaneous Symbols And Definitions 13
SECTION 4 – SPECIFICATIONS 14
4-1. Serial Number And Stock Number Location 14
4-2. Unit Specifications 14
SECTION 5 – INSTALLATION 14
5-1. Installing Swivel Into Pipe Post 14
5-2. Installing Insulator Kit 15
5-3. Adjusting Control Tilt Bracket 16
5-4. Installing Boom And Reel Support 16
5-5. Installing Wire Guide Extension 17
5-6. Equipment Connection Diagram 17
5-7. Remote Operator Interface Connections 18
5-8. 9-Pin Network Receptacle Information 19
5-9. 10-Socket Motor Receptacle Information 19
5-10. Dual Schedule Switch Option 19
5-11. Removing Safety Collar And Adjusting Boom 20
5-12. Installing And Threading Welding Wire 21
SECTION 6 – OPERATION 22
6-1. Operational Terms 22
6-2. Power Switch 23
SECTION 7 – ELECTRICAL DIAGRAM 24
SECTION 8 – PARTS LIST 28
WARRANTY

SECTION 1 – SAFETY PRECAUTIONS - READ BEFORE USING

Protect yourself and others from injury — read, follow, and save these important safety precautions and operating instructions.

1-1. Symbol Usage

DANGER! – Indicates a hazardous situation which, if not avoided, will result in death or serious injury. The possible hazards are shown in the adjoining symbols or explained in the text.

Indicates a hazardous situation which, if not avoided, could result in death or serious injury. The possible hazards are shown in the adjoining symbols or explained in the text.

NOTICE *– Indicates statements not related to personal injury.*

☞ *Indicates special instructions.*

This group of symbols means Warning! Watch Out! ELECTRIC SHOCK, MOVING PARTS, and HOT PARTS hazards. Consult symbols and related instructions below for necessary actions to avoid the hazards.

1-2. Arc Welding Hazards

The symbols shown below are used throughout this manual to call attention to and identify possible hazards. When you see the symbol, watch out, and follow the related instructions to avoid the hazard. The safety information given below is only a summary of the more complete safety information found in the Safety Standards listed in Section 1-5. Read and follow all Safety Standards.

Only qualified persons should install, operate, maintain, and repair this unit.

During operation, keep everybody, especially children, away.

ELECTRIC SHOCK can kill.

Touching live electrical parts can cause fatal shocks or severe burns. The electrode and work circuit is electrically live whenever the output is on. The input power circuit and machine internal circuits are also live when power is on. In semiautomatic or automatic wire welding, the wire, wire reel, drive roll housing, and all metal parts touching the welding wire are electrically live. Incorrectly installed or improperly grounded equipment is a hazard.

- Do not touch live electrical parts.
- Wear dry, hole-free insulating gloves and body protection.
- Insulate yourself from work and ground using dry insulating mats or covers big enough to prevent any physical contact with the work or ground.
- Do not use AC output in damp areas, if movement is confined, or if there is a danger of falling.
- Use AC output ONLY if required for the welding process.
- If AC output is required, use remote output control if present on unit.
- Additional safety precautions are required when any of the following electrically hazardous conditions are present: in damp locations or while wearing wet clothing; on metal structures such as floors, gratings, or scaffolds; when in cramped positions such as sitting, kneeling, or lying; or when there is a high risk of unavoidable or accidental contact with the workpiece or ground. For these conditions, use the following equipment in order presented: 1) a semiautomatic DC constant voltage (wire) welder, 2) a DC manual (stick) welder, or 3) an AC welder with reduced open-circuit voltage. In most situations, use of a DC, constant voltage wire welder is recommended. And, do not work alone!
- Disconnect input power or stop engine before installing or servicing this equipment. Lockout/tagout input power according to OSHA 29 CFR 1910.147 (see Safety Standards).
- Properly install, ground, and operate this equipment according to its Owner's Manual and national, state, and local codes.
- Always verify the supply ground – check and be sure that input power cord ground wire is properly connected to ground terminal in disconnect box or that cord plug is connected to a properly grounded receptacle outlet.
- When making input connections, attach proper grounding conductor first – double-check connections.
- Keep cords dry, free of oil and grease, and protected from hot metal and sparks.
- Frequently inspect input power cord for damage or bare wiring – replace cord immediately if damaged – bare wiring can kill.
- Turn off all equipment when not in use.
- Do not use worn, damaged, undersized, or poorly spliced cables.
- Do not drape cables over your body.
- If earth grounding of the workpiece is required, ground it directly with a separate cable.
- Do not touch electrode if you are in contact with the work, ground, or another electrode from a different machine.
- Do not touch electrode holders connected to two welding machines at the same time since double open-circuit voltage will be present.
- Use only well-maintained equipment. Repair or replace damaged parts at once. Maintain unit according to manual.
- Wear a safety harness if working above floor level.
- Keep all panels and covers securely in place.
- Clamp work cable with good metal-to-metal contact to workpiece or worktable as near the weld as practical.
- Insulate work clamp when not connected to workpiece to prevent contact with any metal object.
- Do not connect more than one electrode or work cable to any single weld output terminal. Disconnect cable for process not in use.

SIGNIFICANT DC VOLTAGE exists in inverter welding power sources AFTER removal of input power.

- Turn Off inverter, disconnect input power, and discharge input capacitors according to instructions in Maintenance Section before touching any parts.

HOT PARTS can burn.

- Do not touch hot parts bare handed.
- Allow cooling period before working on equipment.
- To handle hot parts, use proper tools and/or wear heavy, insulated welding gloves and clothing to prevent burns.

FUMES AND GASES can be hazardous.

Welding produces fumes and gases. Breathing these fumes and gases can be hazardous to your health.

- Keep your head out of the fumes. Do not breathe the fumes.
- If inside, ventilate the area and/or use local forced ventilation at the arc to remove welding fumes and gases.
- If ventilation is poor, wear an approved air-supplied respirator.
- Read and understand the Material Safety Data Sheets (MSDSs) and the manufacturer's instructions for metals, consumables, coatings, cleaners, and degreasers.
- Work in a confined space only if it is well ventilated, or while wearing an air-supplied respirator. Always have a trained watch-person nearby. Welding fumes and gases can displace air and lower the oxygen level causing injury or death. Be sure the breathing air is safe.
- Do not weld in locations near degreasing, cleaning, or spraying operations. The heat and rays of the arc can react with vapors to form highly toxic and irritating gases.
- Do not weld on coated metals, such as galvanized, lead, or cadmium plated steel, unless the coating is removed from the weld area, the area is well ventilated, and while wearing an air-supplied respirator. The coatings and any metals containing these elements can give off toxic fumes if welded.

ARC RAYS can burn eyes and skin.

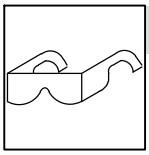
Arc rays from the welding process produce intense visible and invisible (ultraviolet and infrared) rays that can burn eyes and skin. Sparks fly off from the weld.

- Wear an approved welding helmet fitted with a proper shade of filter lenses to protect your face and eyes from arc rays and sparks when welding or watching (see ANSI Z49.1 and Z87.1 listed in Safety Standards).
- Wear approved safety glasses with side shields under your helmet.
- Use protective screens or barriers to protect others from flash, glare and sparks; warn others not to watch the arc.
- Wear protective clothing made from durable, flame-resistant material (leather, heavy cotton, or wool) and foot protection.

WELDING can cause fire or explosion.

Welding on closed containers, such as tanks, drums, or pipes, can cause them to blow up. Sparks can fly off from the welding arc. The flying sparks, hot workpiece, and hot equipment can cause fires and burns. Accidental contact of electrode to metal objects can cause sparks, explosion, overheating, or fire. Check and be sure the area is safe before doing any welding.

- Remove all flammables within 35 ft (10.7 m) of the welding arc. If this is not possible, tightly cover them with approved covers.
- Do not weld where flying sparks can strike flammable material.
- Protect yourself and others from flying sparks and hot metal.
- Be alert that welding sparks and hot materials from welding can easily go through small cracks and openings to adjacent areas.
- Watch for fire, and keep a fire extinguisher nearby.
- Be aware that welding on a ceiling, floor, bulkhead, or partition can cause fire on the hidden side.
- Do not weld on containers that have held combustibles, or on closed containers such as tanks, drums, or pipes unless they are properly prepared according to AWS F4.1 and AWS A6.0 (see Safety Standards).
- Do not weld where the atmosphere may contain flammable dust, gas, or liquid vapors (such as gasoline).
- Connect work cable to the work as close to the welding area as practical to prevent welding current from traveling long, possibly unknown paths and causing electric shock, sparks, and fire hazards.
- Do not use welder to thaw frozen pipes.
- Remove stick electrode from holder or cut off welding wire at contact tip when not in use.
- Wear oil-free protective garments such as leather gloves, heavy shirt, cuffless trousers, high shoes, and a cap.
- Remove any combustibles, such as a butane lighter or matches, from your person before doing any welding.
- After completion of work, inspect area to ensure it is free of sparks, glowing embers, and flames.
- Use only correct fuses or circuit breakers. Do not oversize or by-pass them.
- Follow requirements in OSHA 1910.252 (a) (2) (iv) and NFPA 51B for hot work and have a fire watcher and extinguisher nearby.



FLYING METAL or DIRT can injure eyes.

- Welding, chipping, wire brushing, and grinding cause sparks and flying metal. As welds cool, they can throw off slag.
- Wear approved safety glasses with side shields even under your welding helmet.

BUILDUP OF GAS can injure or kill.

- Shut off compressed gas supply when not in use.
- Always ventilate confined spaces or use approved air-supplied respirator.

ELECTRIC AND MAGNETIC FIELDS (EMF) can affect Implanted Medical Devices.

- Wearers of Pacemakers and other Implanted Medical Devices should keep away.
- Implanted Medical Device wearers should consult their doctor and the device manufacturer before going near arc welding, spot welding, gouging, plasma arc cutting, or induction heating operations.

NOISE can damage hearing.

Noise from some processes or equipment can damage hearing.

- Wear approved ear protection if noise level is high.

CYLINDERS can explode if damaged.

Compressed gas cylinders contain gas under high pressure. If damaged, a cylinder can explode. Since gas cylinders are normally part of the welding process, be sure to treat them carefully.

- Protect compressed gas cylinders from excessive heat, mechanical shocks, physical damage, slag, open flames, sparks, and arcs.
- Install cylinders in an upright position by securing to a stationary support or cylinder rack to prevent falling or tipping.
- Keep cylinders away from any welding or other electrical circuits.
- Never drape a welding torch over a gas cylinder.
- Never allow a welding electrode to touch any cylinder.
- Never weld on a pressurized cylinder – explosion will result.
- Use only correct compressed gas cylinders, regulators, hoses, and fittings designed for the specific application; maintain them and associated parts in good condition.
- Turn face away from valve outlet when opening cylinder valve.
- Keep protective cap in place over valve except when cylinder is in use or connected for use.
- Use the right equipment, correct procedures, and sufficient number of persons to lift and move cylinders.
- Read and follow instructions on compressed gas cylinders, associated equipment, and Compressed Gas Association (CGA) publication P-1 listed in Safety Standards.

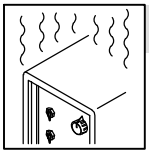
1-3. Additional Symbols For Installation, Operation, And Maintenance

FIRE OR EXPLOSION hazard.

- Do not install or place unit on, over, or near combustible surfaces.
- Do not install unit near flammables.
- Do not overload building wiring – be sure power supply system is properly sized, rated, and protected to handle this unit.

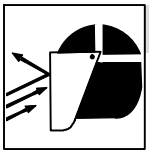
FALLING EQUIPMENT can injure.

- Use lifting eye to lift unit only, NOT running gear, gas cylinders, or any other accessories.
- Use equipment of adequate capacity to lift and support unit.
- If using lift forks to move unit, be sure forks are long enough to extend beyond opposite side of unit.
- Keep equipment (cables and cords) away from moving vehicles when working from an aerial location.
- Follow the guidelines in the Applications Manual for the Revised NIOSH Lifting Equation (Publication No. 94–110) when manually lifting heavy parts or equipment.



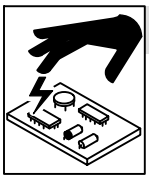
OVERUSE can cause OVERHEATING

- Allow cooling period; follow rated duty cycle.
- Reduce current or reduce duty cycle before starting to weld again.
- Do not block or filter airflow to unit.



FLYING SPARKS can injure.

- Wear a face shield to protect eyes and face.
- Shape tungsten electrode only on grinder with proper guards in a safe location wearing proper face, hand, and body protection.
- Sparks can cause fires — keep flammables away.



STATIC (ESD) can damage PC boards.

- Put on grounded wrist strap BEFORE handling boards or parts.
- Use proper static-proof bags and boxes to store, move, or ship PC boards.

MOVING PARTS can injure.

- Keep away from moving parts.
- Keep away from pinch points such as drive rolls.

WELDING WIRE can injure.

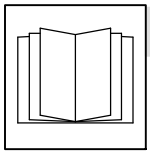
- Do not press gun trigger until instructed to do so.
- Do not point gun toward any part of the body, other people, or any metal when threading welding wire.

BATTERY EXPLOSION can injure.

- Do not use welder to charge batteries or jump start vehicles unless it has a battery charging feature designed for this purpose.

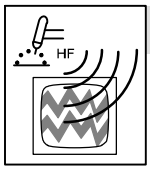
MOVING PARTS can injure.

- Keep away from moving parts such as fans.
- Keep all doors, panels, covers, and guards closed and securely in place.
- Have only qualified persons remove doors, panels, covers, or guards for maintenance and troubleshooting as necessary.
- Reinstall doors, panels, covers, or guards when maintenance is finished and before reconnecting input power.



READ INSTRUCTIONS.

- Read and follow all labels and the Owner's Manual carefully before installing, operating, or servicing unit. Read the safety information at the beginning of the manual and in each section.
- Use only genuine replacement parts from the manufacturer.
- Perform maintenance and service according to the Owner's Manuals, industry standards, and national, state, and local codes.



H.F. RADIATION can cause interference.

- High-frequency (H.F.) can interfere with radio navigation, safety services, computers, and communications equipment.
- Have only qualified persons familiar with electronic equipment perform this installation.
- The user is responsible for having a qualified electrician promptly correct any interference problem resulting from the installation.
- If notified by the FCC about interference, stop using the equipment at once.
- Have the installation regularly checked and maintained.
- Keep high-frequency source doors and panels tightly shut, keep spark gaps at correct setting, and use grounding and shielding to minimize the possibility of interference.

ARC WELDING can cause interference.

- Electromagnetic energy can interfere with sensitive electronic equipment such as computers and computer-driven equipment such as robots.
- Be sure all equipment in the welding area is electromagnetically compatible.
- To reduce possible interference, keep weld cables as short as possible, close together, and down low, such as on the floor.
- Locate welding operation 100 meters from any sensitive electronic equipment.
- Be sure this welding machine is installed and grounded according to this manual.
- If interference still occurs, the user must take extra measures such as moving the welding machine, using shielded cables, using line filters, or shielding the work area.

1-4. California Proposition 65 Warnings

Welding or cutting equipment produces fumes or gases which contain chemicals known to the State of California to cause birth defects and, in some cases, cancer. (California Health & Safety Code Section 25249.5 et seq.)

This product contains chemicals, including lead, known to the state of California to cause cancer, birth defects, or other reproductive harm. *Wash hands after use.*

1-5. Principal Safety Standards

Safety in Welding, Cutting, and Allied Processes, ANSI Standard Z49.1, is available as a free download from the American Welding Society at http://www.aws.org or purchased from Global Engineering Documents (phone: 1-877-413-5184, website: www.global.ihs.com).

Safe Practices for the Preparation of Containers and Piping for Welding and Cutting, American Welding Society Standard AWS F4.1, from Global Engineering Documents (phone: 1-877-413-5184, website: www.global.ihs.com).

Safe Practices for Welding and Cutting Containers that have Held Combustibles, American Welding Society Standard AWS A6.0, from Global Engineering Documents (phone: 1-877-413-5184, website: www.global.ihs.com).

National Electrical Code, NFPA Standard 70, from National Fire Protection Association, Quincy, MA 02269 (phone: 1-800-344-3555, website: www.nfpa.org and www. sparky.org).

Safe Handling of Compressed Gases in Cylinders, CGA Pamphlet P-1, from Compressed Gas Association, 14501 George Carter Way, Suite 103, Chantilly, VA 20151 (phone: 703-788-2700, website:www.cganet.com).

Safety in Welding, Cutting, and Allied Processes, CSA Standard W117.2, from Canadian Standards Association, Standards Sales, 5060 Spectrum Way, Suite 100, Ontario, Canada L4W 5NS (phone: 800-463-6727, website: www.csa-international.org).

Safe Practice For Occupational And Educational Eye And Face Protection, ANSI Standard Z87.1, from American National Standards Institute, 25 West 43rd Street, New York, NY 10036 (phone: 212-642-4900, website: www.ansi.org).

Standard for Fire Prevention During Welding, Cutting, and Other Hot Work, NFPA Standard 51B, from National Fire Protection Association, Quincy, MA 02269 (phone: 1-800-344-3555, website: www.nfpa.org.

OSHA, Occupational Safety and Health Standards for General Industry, Title 29, Code of Federal Regulations (CFR), Part 1910, Subpart Q, and Part 1926, Subpart J, from U.S. Government Printing Office, Superintendent of Documents, P.O. Box 371954, Pittsburgh, PA 15250-7954 (phone: 1-866-512-1800) (there are 10 OSHA Regional Offices—phone for Region 5, Chicago, is 312-353-2220, website: www.osha.gov).

Applications Manual for the Revised NIOSH Lifting Equation, The National Institute for Occupational Safety and Health (NIOSH), 1600 Clifton Rd, Atlanta, GA 30333 (phone: 1-800-232-4636, website: www.cdc.gov/NIOSH).

1-6. EMF Information

Electric current flowing through any conductor causes localized electric and magnetic fields (EMF). Welding current creates an EMF field around the welding circuit and welding equipment. EMF fields may interfere with some medical implants, e.g. pacemakers. Protective measures for persons wearing medical implants have to be taken. For example, restrict access for passers–by or conduct individual risk assessment for welders. All welders should use the following procedures in order to minimize exposure to EMF fields from the welding circuit:

1. Keep cables close together by twisting or taping them, or using a cable cover.
2. Do not place your body between welding cables. Arrange cables to one side and away from the operator.
3. Do not coil or drape cables around your body.
4. Keep head and trunk as far away from the equipment in the welding circuit as possible.
5. Connect work clamp to workpiece as close to the weld as possible.
6. Do not work next to, sit or lean on the welding power source.
7. Do not weld whilst carrying the welding power source or wire feeder.

About Implanted Medical Devices:

Implanted Medical Device wearers should consult their doctor and the device manufacturer before performing or going near arc welding, spot welding, gouging, plasma arc cutting, or induction heating operations. If cleared by your doctor, then following the above procedures is recommended.

SECTION 2 – CONSIGNES DE SÉCURITÉ – LIRE AVANT UTILISATION

Pour écarter les risques de blessure pour vous–même et pour autrui — lire, appliquer et ranger en lieu sûr ces consignes relatives aux précautions de sécurité et au mode opératoire.

2-1. Symboles utilisés

DANGER! – Indique une situation dangereuse qui si on l'évite pas peut donner la mort ou des blessures graves. Les dangers possibles sont montrés par les symboles joints ou sont expliqués dans le texte.

Indique une situation dangereuse qui si on l'évite pas peut donner la mort ou des blessures graves. Les dangers possibles sont montrés par les symboles joints ou sont expliqués dans le texte.

***NOTE** – Indique des déclarations pas en relation avec des blessures personnelles.*

☞ *Indique des instructions spécifiques.*

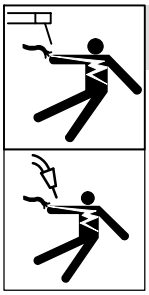
Ce groupe de symboles veut dire Avertissement! Attention! DANGER DE CHOC ELECTRIQUE, PIECES EN MOUVEMENT, et PIECES CHAUDES. Consulter les symboles et les instructions ci-dessous y afférant pour les actions nécessaires afin d'éviter le danger.

2-2. Dangers relatifs au soudage à l'arc

Les symboles représentés ci-dessous sont utilisés dans ce manuel pour attirer l'attention et identifier les dangers possibles. En présence de l'un de ces symboles, prendre garde et suivre les instructions afférentes pour éviter tout risque. Les instructions en matière de sécurité indiquées ci-dessous ne constituent qu'un sommaire des instructions de sécurité plus complètes fournies dans les normes de sécurité énumérées dans la Section 2-5. Lire et observer toutes les normes de sécurité.

Seul un personnel qualifié est autorisé à installer, faire fonctionner, entretenir et réparer cet appareil.

Pendant le fonctionnement, maintenir à distance toutes les personnes, notamment les enfants de l'appareil.



UNE DÉCHARGE ÉLECTRIQUE peut entraîner la mort.

Le contact d'organes électriques sous tension peut provoquer des accidents mortels ou des brûlures graves. Le circuit de l'électrode et de la pièce est sous tension lorsque le courant est délivré à la sortie. Le circuit d'alimentation et les circuits internes de la machine sont également sous tension lorsque l'alimentation est sur Marche. Dans le mode de soudage avec du fil, le fil, le dérouleur, le bloc de commande du rouleau et toutes les parties métalliques en contact avec le fil sont sous tension électrique. Un équipement installé ou mis à la terre de manière incorrecte ou impropre constitue un danger.

- Ne pas toucher aux pièces électriques sous tension.
- Porter des gants isolants et des vêtements de protection secs et sans trous.
- S'isoler de la pièce à couper et du sol en utilisant des housses ou des tapis assez grands afin d'éviter tout contact physique avec la pièce à couper ou le sol.
- Ne pas se servir de source électrique à courant électrique dans les zones humides, dans les endroits confinés ou là où on risque de tomber.
- Se servir d'une source électrique à courant électrique UNIQUEMENT si le procédé de soudage le demande.
- Si l'utilisation d'une source électrique à courant électrique s'avère nécessaire, se servir de la fonction de télécommande si l'appareil en est équipé.
- D'autres consignes de sécurité sont nécessaires dans les conditions suivantes : risques électriques dans un environnement humide ou si l'on porte des vêtements mouillés ; sur des structures métalliques telles que sols, grilles ou échafaudages ; en position coincée comme assise, à genoux ou couchée ; ou s'il y a un risque élevé de contact inévitable ou accidentel avec la pièce à souder ou le sol. Dans ces conditions, utiliser les équipements suivants, dans l'ordre indiqué : 1) un poste à souder DC à tension constante (à fil), 2) un poste à souder DC manuel (électrode) ou 3) un poste à souder AC à tension à vide réduite. Dans la plupart des situations, l'utilisation d'un poste à souder DC à fil à tension constante est recommandée. En outre, ne pas travailler seul !
- Couper l'alimentation ou arrêter le moteur avant de procéder à l'installation, à la réparation ou à l'entretien de l'appareil. Déverrouiller l'alimentation selon la norme OSHA 29 CFR 1910.147 (voir normes de sécurité).
- Installez, mettez à la terre et utilisez correctement cet équipement conformément à son Manuel d'Utilisation et aux réglementations nationales, gouvernementales et locales.
- Toujours vérifier la terre du cordon d'alimentation. Vérifier et s'assurer que le fil de terre du cordon d'alimentation est bien raccordé à la borne de terre du sectionneur ou que la fiche du cordon est raccordée à une prise correctement mise à la terre.
- En effectuant les raccordements d'entrée, fixer d'abord le conducteur de mise à la terre approprié et contre-vérifier les connexions.
- Les câbles doivent être exempts d'humidité, d'huile et de graisse; protégez–les contre les étincelles et les pièces métalliques chaudes.
- Vérifier fréquemment le cordon d'alimentation afin de s'assurer qu'il n'est pas altéré ou à nu, le remplacer immédiatement s'il l'est. Un fil à nu peut entraîner la mort.
- L'équipement doit être hors tension lorsqu'il n'est pas utilisé.
- Ne pas utiliser des câbles usés, endommagés, de grosseur insuffisante ou mal épissés.
- Ne pas enrouler les câbles autour du corps.
- Si la pièce soudée doit être mise à la terre, le faire directement avec un câble distinct.
- Ne pas toucher l'électrode quand on est en contact avec la pièce, la terre ou une électrode provenant d'une autre machine.
- Ne pas toucher des porte électrodes connectés à deux machines en même temps à cause de la présence d'une tension à vide doublée.
- N'utiliser qu'un matériel en bon état. Réparer ou remplacer sur-le-champ les pièces endommagées. Entretenir l'appareil conformément à ce manuel.
- Porter un harnais de sécurité si l'on doit travailler au-dessus du sol.
- S'assurer que tous les panneaux et couvercles sont correctement en place.
- Fixer le câble de retour de façon à obtenir un bon contact métal-métal avec la pièce à souder ou la table de travail, le plus près possible de la soudure.
- Isoler la pince de masse quand pas mis à la pièce pour éviter le contact avec tout objet métallique.
- Ne pas raccorder plus d'une électrode ou plus d'un câble de masse à une même borne de sortie de soudage. Débrancher le câble pour le procédé non utilisé.

Il reste une TENSION DC NON NÉGLIGEABLE dans les sources de soudage onduleur UNE FOIS l'alimentation coupée.

- Arrêter les convertisseurs, débrancher le courant électrique et décharger les condensateurs d'alimentation selon les instructions indiquées dans la partie Entretien avant de toucher les pièces.

LES PIÈCES CHAUDES peuvent provoquer des brûlures.

- Ne pas toucher à mains nues les parties chaudes.
- Prévoir une période de refroidissement avant de travailler à l'équipement.
- Ne pas toucher aux pièces chaudes, utiliser les outils recommandés et porter des gants de soudage et des vêtements épais pour éviter les brûlures.

LES FUMÉES ET LES GAZ peuvent être dangereux.

Le soudage génère des fumées et des gaz. Leur inhalation peut être dangereux pour votre santé.

- Eloigner votre tête des fumées. Ne pas respirer les fumées.
- À l'intérieur, ventiler la zone et/ou utiliser une ventilation forcée au niveau de l'arc pour l'évacuation des fumées et des gaz de soudage.
- Si la ventilation est médiocre, porter un respirateur anti-vapeurs approuvé.
- Lire et comprendre les spécifications de sécurité des matériaux (MSDS) et les instructions du fabricant concernant les métaux, les consommables, les revêtements, les nettoyants et les dégraisseurs.
- Travailler dans un espace fermé seulement s'il est bien ventilé ou en portant un respirateur à alimentation d'air. Demander toujours à un surveillant dûment formé de se tenir à proximité. Des fumées et des gaz de soudage peuvent déplacer l'air et abaisser le niveau d'oxygène provoquant des blessures ou des accidents mortels. S'assurer que l'air de respiration ne présente aucun danger.
- Ne pas souder dans des endroits situés à proximité d'opérations de dégraissage, de nettoyage ou de pulvérisation. La chaleur et les rayons de l'arc peuvent réagir en présence de vapeurs et former des gaz hautement toxiques et irritants.
- Ne pas souder des métaux munis d'un revêtement, tels que l'acier galvanisé, plaqué en plomb ou au cadmium à moins que le revêtement n'ait été enlevé dans la zone de soudure, que l'endroit soit bien ventilé, et en portant un respirateur à alimentation d'air. Les revêtements et tous les métaux renfermant ces éléments peuvent dégager des fumées toxiques en cas de soudage.

LES RAYONS DE L'ARC peuvent provoquer des brûlures dans les yeux et sur la peau.

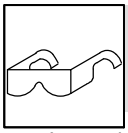
Le rayonnement de l'arc du procédé de soudag génère des rayons visibles et invisibles intense (ultraviolets et infrarouges) susceptibles de provoquer des brûlure dans les yeux et sur la peau. Des étincelles sont projetées pendant l soudage.

- Porter un casque de soudage approuvé muni de verres filtrants approprié pour protéger visage et yeux pour protéger votre visage et vos yeux pendant le soudage ou pour regarder (voir ANSI Z49.1 et Z87.1 énuméré dans les normes de sécurité).
- Porter des lunettes de sécurité avec écrans latéraux même sous votre casque.
- Avoir recours à des écrans protecteurs ou à des rideaux pour protéger les autres contre les rayonnements les éblouissements et les étincelles ; prévenir toute personne sur les lieux de ne pas regarder l'arc.
- Porter des vêtements confectionnés avec des matières résistantes et ignifuges (cuir, coton lourd ou laine) et des bottes de protection.

LE SOUDAGE peut provoquer un incendie ou une explosion.

Le soudage effectué sur des conteneurs fermés tels que des réservoirs, tambours ou des conduites peut provoquer leur éclatement. Des étincelles peuvent être projetées de l'arc de soudure. La projection d'étincelles, des pièces chaudes et des équipements chauds peut provoquer des incendies et des brûlures. Le contact accidentel de l'électrode avec des objets métalliques peut provoquer des étincelles, une explosion, un surchauffement ou un incendie. Avant de commencer le soudage, vérifier et s'assurer que l'endroit ne présente pas de danger.

- Déplacer toutes les substances inflammables à une distance de 10,7 m de l'arc de soudage. En cas d'impossibilité les recouvrir soigneusement avec des protections homologués.
- Ne pas souder dans un endroit là où des étincelles peuvent tomber sur des substances inflammables.
- Se protéger et d'autres personnes de la projection d'étincelles et de métal chaud.
- Des étincelles et des matériaux chauds du soudage peuvent facilement passer dans d'autres zones en traversant de petites fissures et des ouvertures.
- Surveiller tout déclenchement d'incendie et tenir un extincteur à proximité.
- Le soudage effectué sur un plafond, plancher, paroi ou séparation peut déclencher un incendie de l'autre côté.
- Ne pas effectuer le soudage sur des conteneurs fermés tels que des réservoirs, tambours, ou conduites, à moins qu'ils n'aient été préparés correctement conformément à AWS F4.1 et AWS A6.0 (voir les Normes de Sécurité).
- Ne soudez pas si l'air ambiant est chargé de particules, gaz, ou vapeurs inflammables (vapeur d'essence, par exemple).
- Brancher le câble de masse sur la pièce le plus près possible de la zone de soudage pour éviter le transport du courant sur une longue distance par des chemins inconnus éventuels en provoquant des risques d'électrocution, d'étincelles et d'incendie.
- Ne pas utiliser le poste de soudage pour dégeler des conduites gelées.
- En cas de non utilisation, enlever la baguette d'électrode du porte-électrode ou couper le fil à la pointe de contact.
- Porter des vêtements de protection dépourvus d'huile tels que des gants en cuir, une chemise en matériau lourd, des pantalons sans revers, des chaussures hautes et un couvre chef.
- Avant de souder, retirer toute substance combustible de vos poches telles qu'un allumeur au butane ou des allumettes.
- Une fois le travail achevé, assurez–vous qu'il ne reste aucune trace d'étincelles incandescentes ni de flammes.
- Utiliser exclusivement des fusibles ou coupe–circuits appropriés. Ne pas augmenter leur puissance; ne pas les ponter.
- Une fois le travail achevé, assurez–vous qu'il ne reste aucune trace d'étincelles incandescentes ni de flammes.
- Utiliser exclusivement des fusibles ou coupe–circuits appropriés. Ne pas augmenter leur puissance; ne pas les ponter.
- Suivre les recommandations dans OSHA 1910.252(a)(2)(iv) et NFPA 51B pour les travaux à chaud et avoir de la surveillance et un extincteur à proximité.



DES PIECES DE METAL ou DES SALETES peuvent provoquer des blessures dans les yeux.

- Le soudage, l'écaillement, le passage de la pièce à la brosse en fil de fer, et le meulage génèrent des étincelles et des particules métalliques volantes. Pendant la période de refroidissement des soudures, elles risquent de projeter du laitier.
- Porter des lunettes de sécurité avec écrans latéraux ou un écran facial.

LES ACCUMULATIONS DE GAZ risquent de provoquer des blessures ou même la mort.

- Fermer l'alimentation du gaz comprimé en cas de non utilisation.
- Veiller toujours à bien aérer les espaces confinés ou se servir d'un respirateur d'adduction d'air homologué.

Les CHAMPS ÉLECTROMAGNÉTIQUES (CEM) peuvent affecter les implants médicaux.

- Les porteurs de stimulateurs cardiaques et autres implants médicaux doivent rester à distance.
- Les porteurs d'implants médicaux doivent consulter leur médecin et le fabricant du dispositif avant de s'approcher de la zone où se déroule du soudage à l'arc, du soudage par points, du gougeage, de la découpe plasma ou une opération de chauffage par induction.

LE BRUIT peut endommager l'ouïe.

Le bruit des processus et des équipements peut affecter l'ouïe.

- Porter des protections approuvées pour les oreilles si le niveau sonore est trop élevé.

LES BOUTEILLES peuvent exploser si elles sont endommagées.

Les bouteilles de gaz comprimé contiennent du gaz sous haute pression. Si une bouteille est endommagée, elle peut exploser. Du fait que les bouteilles de gaz font normalement partie du procédé de soudage, les manipuler avec précaution.

- Protéger les bouteilles de gaz comprimé d'une chaleur excessive, des chocs mécaniques, des dommages physiques, du laitier, des flammes ouvertes, des étincelles et des arcs.
- Placer les bouteilles debout en les fixant dans un support stationnaire ou dans un porte-bouteilles pour les empêcher de tomber ou de se renverser.
- Tenir les bouteilles éloignées des circuits de soudage ou autres circuits électriques.
- Ne jamais placer une torche de soudage sur une bouteille à gaz.
- Une électrode de soudage ne doit jamais entrer en contact avec une bouteille.
- Ne jamais souder une bouteille pressurisée – risque d'explosion.
- Utiliser seulement des bouteilles de gaz comprimé, régulateurs, tuyaux et raccords convenables pour cette application spécifique; les maintenir ainsi que les éléments associés en bon état.
- Détourner votre visage du détendeur-régulateur lorsque vous ouvrez la soupape de la bouteille.
- Le couvercle du détendeur doit toujours être en place, sauf lorsque la bouteille est utilisée ou qu'elle est reliée pour usage ultérieur.
- Utiliser les équipements corrects, les bonnes procédures et suffisamment de personnes pour soulever et déplacer les bouteilles.
- Lire et suivre les instructions sur les bouteilles de gaz comprimé, l'équipement connexe et le dépliant P-1 de la CGA (Compressed Gas Association) mentionné dans les principales normes de sécurité.

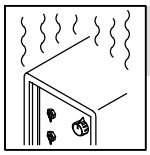
2-3. Dangers supplémentaires en relation avec l'installation, le fonctionnement et la maintenance

Risque D'INCENDIE OU D'EXPLOSION.

- Ne pas placer l'appareil sur, au-dessus ou à proximité de surfaces inflammables.
- Ne pas installer l'appareil à proximité de produits inflammables.
- Ne pas surcharger l'installation électrique – s'assurer que l'alimentation est correctement dimensionnée et protégée avant de mettre l'appareil en service.

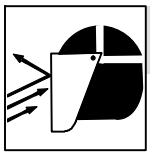
LA CHUTE DE L'ÉQUIPEMENT peut provoquer des blessures.

- Utiliser l'anneau de levage uniquement pour soulever l'appareil, NON PAS les chariots, les bouteilles de gaz ou tout autre accessoire.
- Utiliser un équipement de levage de capacité suffisante pour lever l'appareil.
- En utilisant des fourches de levage pour déplacer l'unité, s'assurer que les fourches sont suffisamment longues pour dépasser du côté opposé de l'appareil.
- Tenir l'équipement (câbles et cordons) à distance des véhicules mobiles lors de toute opération en hauteur.
- Suivre les consignes du Manuel des applications pour l'équation de levage NIOSH révisée (Publication Nº94–110) lors du levage manuelle de pièces ou équipements lourds.



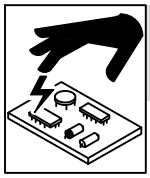
L'EMPLOI EXCESSIF peut SURCHAUFFER L'ÉQUIPEMENT.

- Prévoir une période de refroidissement ; respecter le cycle opératoire nominal.
- Réduire le courant ou le facteur de marche avant de poursuivre le soudage.
- Ne pas obstruer les passages d'air du poste.



LES ÉTINCELLES PROJETÉES peuvent provoquer des blessures.

- Porter un écran facial pour protéger le visage et les yeux.
- Affûter l'électrode au tungstène uniquement à la meuleuse dotée de protecteurs. Cette manœuvre est à exécuter dans un endroit sûr lorsque l'on porte l'équipement homologué de protection du visage, des mains et du corps.
- Les étincelles risquent de causer un incendie – éloigner toute substance inflammable.



LES CHARGES ÉLECTROSTATIQUES peuvent endommager les circuits imprimés.

- Établir la connexion avec la barrette de terre avant de manipuler des cartes ou des pièces.
- Utiliser des pochettes et des boîtes antistatiques pour stocker, déplacer ou expédier des cartes de circuits imprimes.

Les PIÈCES MOBILES peuvent causer des blessures.

- Ne pas s'approcher des organes mobiles.
- Ne pas s'approcher des points de coincement tels que des rouleaux de commande.

LES FILS DE SOUDAGE peuvent provoquer des blessures.

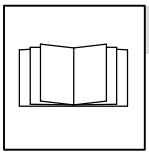
- Ne pas appuyer sur la gâchette avant d'en avoir reçu l'instruction.
- Ne pas diriger le pistolet vers soi, d'autres personnes ou toute pièce mécanique en engageant le fil de soudage.

L'EXPLOSION DE LA BATTERIE peut provoquer des blessures.

- Ne pas utiliser l'appareil de soudage pour charger des batteries ou faire démarrer des véhicules à l'aide de câbles de démarrage, sauf si l'appareil dispose d'une fonctionnalité de charge de batterie destinée à cet usage.

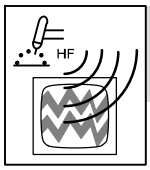
Les PIÈCES MOBILES peuvent causer des blessures.

- S'abstenir de toucher des organes mobiles tels que des ventilateurs.
- Maintenir fermés et verrouillés les portes, panneaux, recouvrements et dispositifs de protection.
- Lorsque cela est nécessaire pour des travaux d'entretien et de dépannage, faire retirer les portes, panneaux, recouvrements ou dispositifs de protection uniquement par du personnel qualifié.
- Remettre les portes, panneaux, recouvrements ou dispositifs de protection quand l'entretien est terminé et avant de rebrancher l'alimentation électrique.



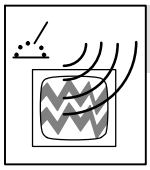
LIRE LES INSTRUCTIONS.

- Lire et appliquer les instructions sur les étiquettes et le Mode d'emploi avant l'installation, l'utilisation ou l'entretien de l'appareil. Lire les informations de sécurité au début du manuel et dans chaque section.
- N'utiliser que les pièces de rechange recommandées par le constructeur.
- Effectuer l'entretien en respectant les manuels d'utilisation, les normes industrielles et les codes nationaux, d'état et locaux.



LE RAYONNEMENT HAUTE FRÉQUENCE (H.F.) risque de provoquer des interférences.

- Le rayonnement haute fréquence (H.F.) peut provoquer des interférences avec les équipements de radio–navigation et de communication, les services de sécurité et les ordinateurs.
- Demander seulement à des personnes qualifiées familiarisées avec des équipements électroniques de faire fonctionner l'installation.
- L'utilisateur est tenu de faire corriger rapidement par un électricien qualifié les interférences résultant de l'installation.
- Si le FCC signale des interférences, arrêter immédiatement l'appareil.
- Effectuer régulièrement le contrôle et l'entretien de l'installation.
- Maintenir soigneusement fermés les portes et les panneaux des sources de haute fréquence, maintenir les éclateurs à une distance correcte et utiliser une terre et un blindage pour réduire les interférences éventuelles.



LE SOUDAGE À L'ARC risque de provoquer des interférences.

- L'énergie électromagnétique risque de provoquer des interférences pour l'équipement électronique sensible tel que les ordinateurs et l'équipement commandé par ordinateur tel que les robots.
- Veiller à ce que tout l'équipement de la zone de soudage soit compatible électromagnétiquement.
- Pour réduire la possibilité d'interférence, maintenir les câbles de soudage aussi courts que possible, les grouper, et les poser aussi bas que possible (ex. par terre).
- Veiller à souder à une distance de 100 mètres de tout équipement électronique sensible.
- Veiller à ce que ce poste de soudage soit posé et mis à la terre conformément à ce mode d'emploi.
- En cas d'interférences après avoir pris les mesures précédentes, il incombe à l'utilisateur de prendre des mesures supplémentaires telles que le déplacement du poste, l'utilisation de câbles blindés, l'utilisation de filtres de ligne ou la pose de protecteurs dans la zone de travail.

2-4. Proposition californienne 65 Avertissements

⚠ **Les équipements de soudage et de coupage produisent des fumées et des gaz qui contiennent des produits chimiques dont l'État de Californie reconnaît qu'ils provoquent des malformations congénitales et, dans certains cas, des cancers. (Code de santé et de sécurité de Californie, chapitre 25249.5 et suivants)**

⚠ **Ce produit contient des produits chimiques, notamment du plomb, dont l'État de Californie reconnaît qu'ils provoquent des cancers, des malformations congénitales ou d'autres problèmes de procréation. *Se laver les mains après utilisation.***

2-5. Principales normes de sécurité

Safety in Welding, Cutting, and Allied Processes, ANSI Standard Z49.1, is available as a free download from the American Welding Society at http://www.aws.org or purchased from Global Engineering Documents (phone: 1-877-413-5184, website: www.global.ihs.com).

Safe Practices for the Preparation of Containers and Piping for Welding and Cutting, American Welding Society Standard AWS F4.1, from Global Engineering Documents (phone: 1-877-413-5184, website: www.global.ihs.com).

Safe Practices for Welding and Cutting Containers that have Held Combustibles, American Welding Society Standard AWS A6.0, from Global Engineering Documents (phone: 1-877-413-5184, website: www.global.ihs.com).

National Electrical Code, NFPA Standard 70, from National Fire Protection Association, Quincy, MA 02269 (phone: 1-800-344-3555, website: www.nfpa.org and www. sparky.org).

Safe Handling of Compressed Gases in Cylinders, CGA Pamphlet P-1, from Compressed Gas Association, 14501 George Carter Way, Suite 103, Chantilly, VA 20151 (phone: 703-788-2700, website:www.cganet.com).

Safety in Welding, Cutting, and Allied Processes, CSA Standard W117.2, from Canadian Standards Association, Standards Sales, 5060 Spectrum Way, Suite 100, Ontario, Canada L4W 5NS (phone: 800-463-6727, website: www.csa-international.org).

Safe Practice For Occupational And Educational Eye And Face Protection, ANSI Standard Z87.1, from American National Standards Institute, 25 West 43rd Street, New York, NY 10036 (phone: 212-642-4900, website: www.ansi.org).

Standard for Fire Prevention During Welding, Cutting, and Other Hot Work, NFPA Standard 51B, from National Fire Protection Association, Quincy, MA 02269 (phone: 1-800-344-3555, website: www.nfpa.org.

OSHA, Occupational Safety and Health Standards for General Industry, Title 29, Code of Federal Regulations (CFR), Part 1910, Subpart Q, and Part 1926, Subpart J, from U.S. Government Printing Office, Superintendent of Documents, P.O. Box 371954, Pittsburgh, PA 15250-7954 (phone: 1-866-512-1800) (there are 10 OSHA Regional Offices—phone for Region 5, Chicago, is 312-353-2220, website: www.osha.gov).

Applications Manual for the Revised NIOSH Lifting Equation, The National Institute for Occupational Safety and Health (NIOSH), 1600 Clifton Rd, Atlanta, GA 30333 (phone: 1-800-232-4636, website: www.cdc.gov/NIOSH).

2-6. Informations relatives aux CEM

Le courant électrique qui traverse tout conducteur génère des champs électromagnétiques (CEM) à certains endroits. Le courant de soudage crée un CEM autour du circuit et du matériel de soudage. Les CEM peuvent créer des interférences avec certains implants médicaux comme des stimulateurs cardiaques. Des mesures de protection pour les porteurs d'implants médicaux doivent être prises: Limiter par exemple tout accès aux passants ou procéder à une évaluation des risques individuels pour les soudeurs. Tous les soudeurs doivent appliquer les procédures suivantes pour minimiser l'exposition aux CEM provenant du circuit de soudage:

1. Rassembler les câbles en les torsadant ou en les attachant avec du ruban adhésif ou avec une housse.
2. Ne pas se tenir au milieu des câbles de soudage. Disposer les câbles d'un côté et à distance de l'opérateur.
3. Ne pas courber et ne pas entourer les câbles autour de votre corps.
4. Maintenir la tête et le torse aussi loin que possible du matériel du circuit de soudage.
5. Connecter la pince sur la pièce aussi près que possible de la soudure.
6. Ne pas travailler à proximité d'une source de soudage, ni s'asseoir ou se pencher dessus.
7. Ne pas souder tout en portant la source de soudage ou le dévidoir.

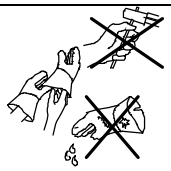
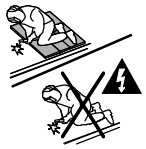
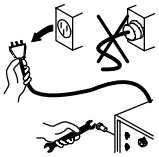
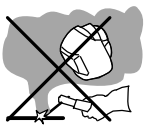
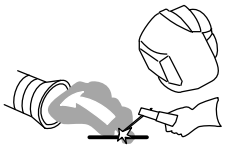
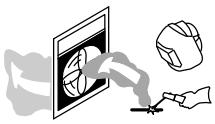
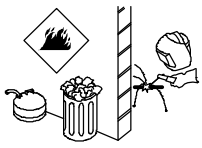
En ce qui concerne les implants médicaux :

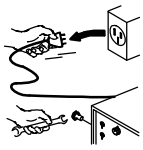
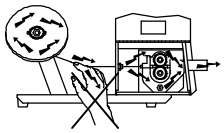
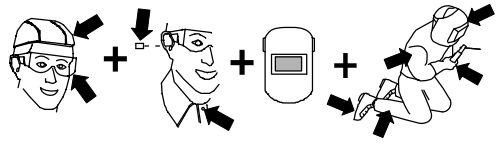
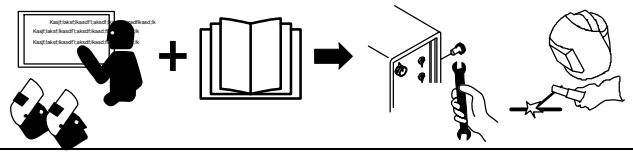
Les porteurs d'implants doivent d'abord consulter leur médecin avant de s'approcher des opérations de soudage à l'arc, de soudage par points, de gougeage, du coupage plasma ou de chauffage par induction. Si le médecin approuve, il est recommandé de suivre les procédures précédentes.

SECTION 3 – DEFINITIONS

3-1. Additional Safety Symbols And Definitions

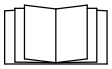
☞ *Some symbols are found only on CE products.*

	Warning! Watch Out! There are possible hazards as shown by the symbols. Safe1 2012–05
	Do not discard product (where applicable) with general waste. Reuse or recycle Waste Electrical and Electronic Equipment (WEEE) by disposing at a designated collection facility. Contact your local recycling office or your local distributor for further information. Safe37 2012–05
	Wear dry insulating gloves. Do not touch electrode with bare hand. Do not wear wet or damaged gloves. Safe2 2012–05
	Protect yourself from electric shock by insulating yourself from work and ground. Safe3 2012–05
	Disconnect input plug or power before working on machine. Safe5 2012–05
	Keep your head out of the fumes. Safe6 2012–05
	Use forced ventilation or local exhaust to remove the fumes. Safe8 2012–05
	Use ventilating fan to remove fumes. Safe10 2012–05
	Keep flammables away from welding. Do not weld near flammables. Safe12 2012–05
	Welding sparks can cause fires. Have a fire extinguisher nearby, and have a watchperson ready to use it. Safe14 2012–05

	Do not weld on drums or any closed containers. Safe16 2012−05
	Do not remove or paint over (cover) the label. Safe20 2012−05
	Disconnect input plug or power before working on machine. Safe30 2012−05
	Drive rolls can injure fingers. Safe32 2012−05
	Welding wire and drive parts are at welding voltage during operation − keep hands and metal objects away. Safe33 2012−05
	Wear hat and safety glasses. Use ear protection and button shirt collar. Use welding helmet with correct shade of filter. Wear complete body protection. Safe38 2012−05
	Become trained and read the instructions before working on the machine or welding. Safe40 2012−05

3-2. Miscellaneous Symbols And Definitions

☞ *Some symbols are found only on CE products.*

	Output	A	Amperes	V	Volts		Direct Current (DC)
X	Duty Cycle		Wire Feed	%	Percent	IP	Degree Of Protection
	Input		Cold Jog (Inch) Towards Workpiece		Purge By Gas		Fast
	Constant Current		Circuit Breaker		Constant Voltage		Slow
	Trigger Hold Off		Trigger Hold On	I_2	Rated Welding Current		Increase
	Read Instructions	U_1	Primary Voltage	U_2	Conventional Load Voltage		Locked
I_1	Primary Current		Sequence		Program		Process
	Wire Type		Gas Type		Variable Inductance	t	Time
	Arc Control		Trigger Control		Trigger Hold On Indicator Light		Trigger Hold Off Indicator Light
	Single Phase		Three Phase		Line Connection		

Notes

SECTION 4 – SPECIFICATIONS

4-1. Serial Number And Stock Number Location

The serial number and stock number for this product is located on the back. For future reference, write serial number in space provided on back cover of this manual.

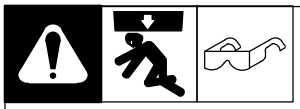
4-2. Unit Specifications

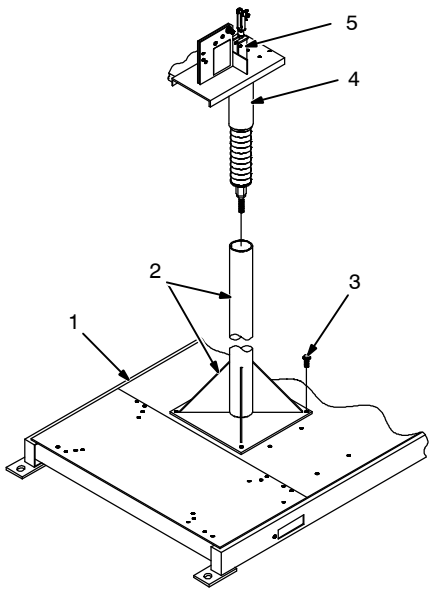
Type of Input Power	Welding Power Source Type	Wire Feed Speed Range	Wire Diameter Range	Welding Circuit Rating	Weight
40 Volts DC 10 Amperes	Axcess Series	Standard: 40 To 1400 ipm (1.0 To 35.6 mpm)	.030 To 1/8 in. (0.8 To 3.2 mm) Max Spool Weight: 60 lb (27 kg)	100 Volts, 750 Amperes, 100% Duty Cycle	8 ft (2.4 m): 110 lb (50 kg) 12 ft (3.7 m): 160 lb (73 kg) 16 ft (4.9 m): 210 lb (95 kg)

	8 ft (2.4 m) Boom	12 ft (3.7 m) Boom	16 ft (4.9 m) Boom
Maximum Height With 4 ft (1.2 m) Post	13 ft (4.0 m)	17 ft (5.2 m)	21 ft (6.4 m)
Vertical Lift Of Boom	Horizontal to 60° Above Horizontal	Horizontal to 60° Above Horizontal	Horizontal to 60° Above Horizontal

SECTION 5 – INSTALLATION

5-1. Installing Swivel Into Pipe Post





1 Swingpak Base or CBC Cart

2 Pipe Post With Base

3 Steel Bolt

Secure as shown using as a minimum 1/2 in diameter SAE grade 5 steel bolts.

4 Swivel Assembly

Insert into pipe post. Lubricate swivel.

5 Safety Collar

Do not remove until instructed to.

Tools Needed:

3/4 in.

152 268-C

5-2. Installing Insulator Kit

Turn Off and disconnect input power.

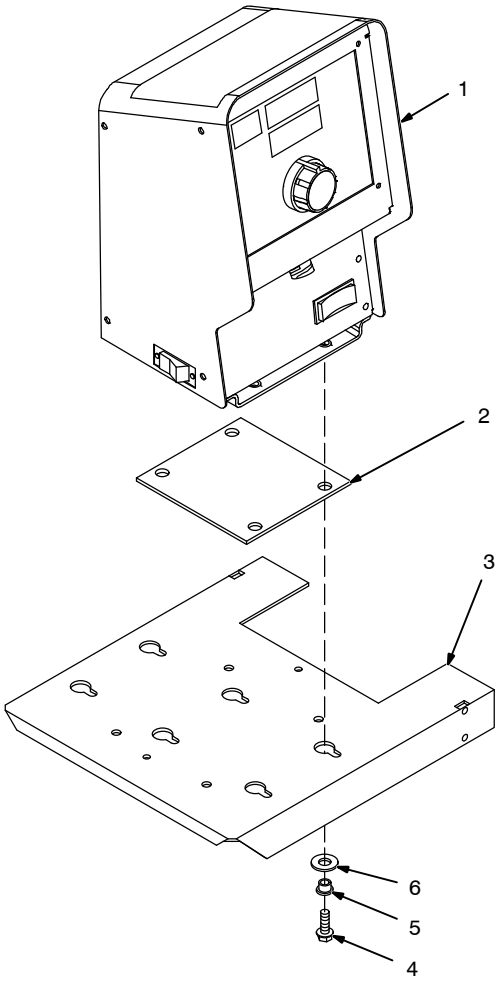
1 ROI Control
2 Insulator Plate
3 Mounting Plate
4 1/4-20x3/4 in. Screw (4)
5 Nylon Shoulder Washer (4)
6 3/8 in. Flat Washer (4)

Place insulator plate between ROI base and metal mounting surface.

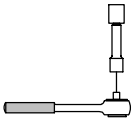
Place nylon shoulder washer over screw.

Place flat washer over shoulder washer.

Insert hardware assembly through hole in metal mounting base, insulator, and into ROI base (4 locations). Tighten hardware to secure control.



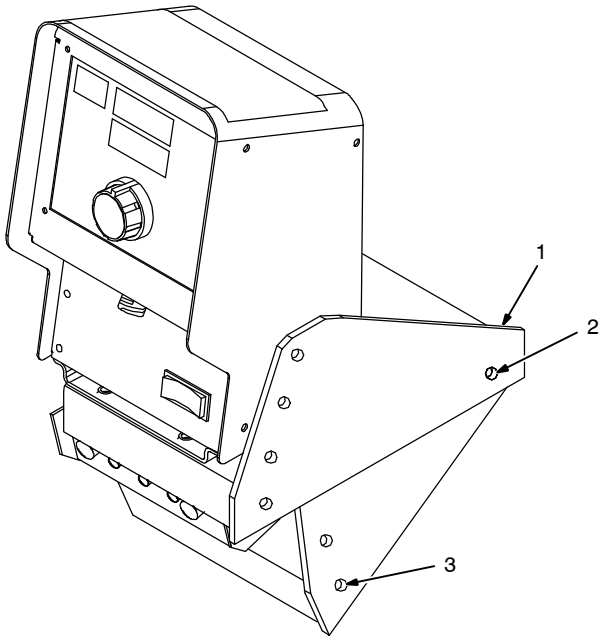
Tools Needed:



1/2 in.

804 165-A

5-3. Adjusting Control Tilt Bracket



1 Tilt Bracket

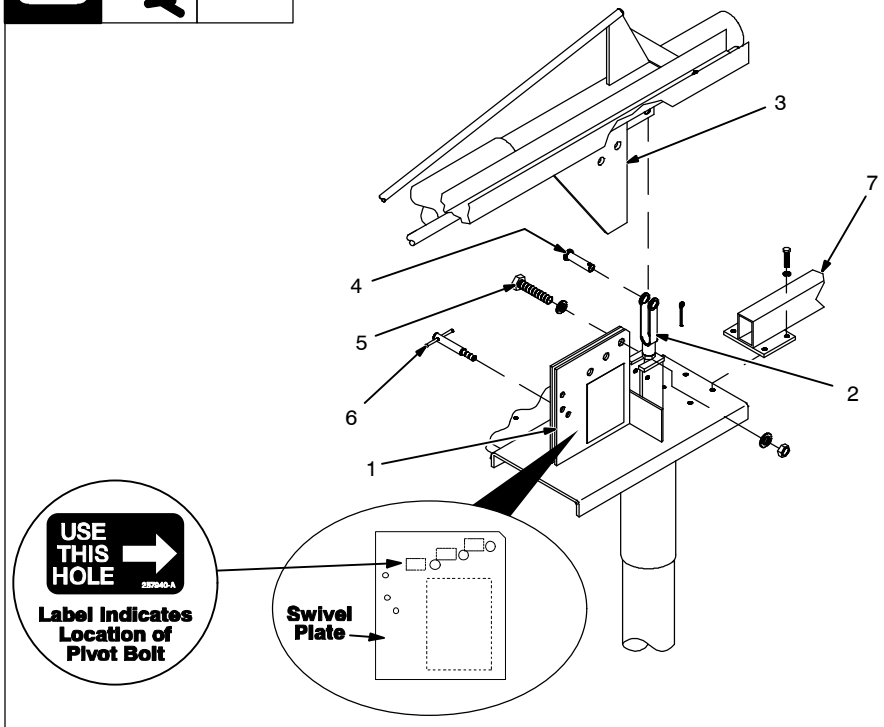
2 Rear Pivot Screw

3 Front Screw

Loosen rear pivot screw. Remove front screw. Pivot control downward to desired viewing angle. Replace and tighten front screw. Tighten pivot screw.

803 768-A

5-4. Installing Boom And Reel Support



1 Swivel Plates

2 Yoke

Remove hardware from swivel plates and yoke.

3 Boom

Set boom into swivel as shown.

4 Yoke Pin

Install pin through yoke. Install cotter pin and spread ends.

5 Bolt

Install bolt, tighten hardware, and back bolt off one half turn.

6 Locking Knob

Install locking knob but do not tighten.

7 Reel Support

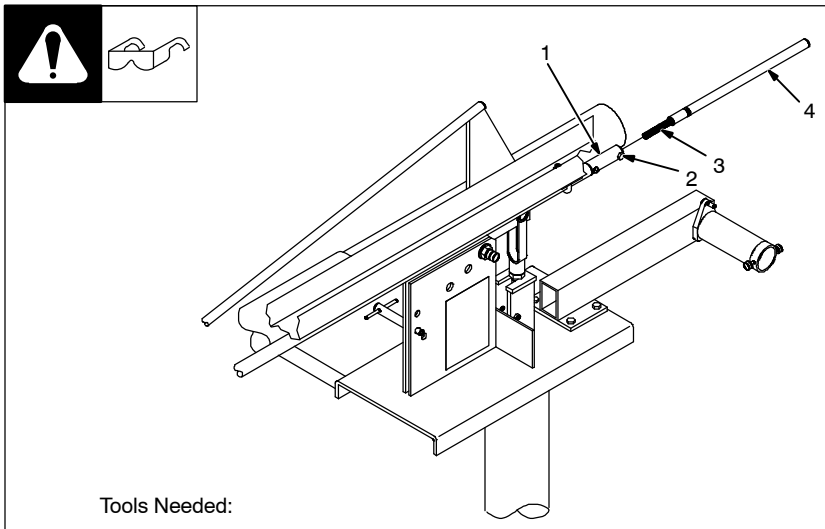
Install reel support.

Tools Needed:

3/8, 3/4 in.

Ref. 803 805-B

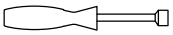
5-5. Installing Wire Guide Extension



1 Wire Guide Fitting
2 Bolt
3 Monocoil Liner
4 Wire Guide Extension

Tighten bolt to secure liner in wire guide fitting. Do not overtighten bolt and crush liner.

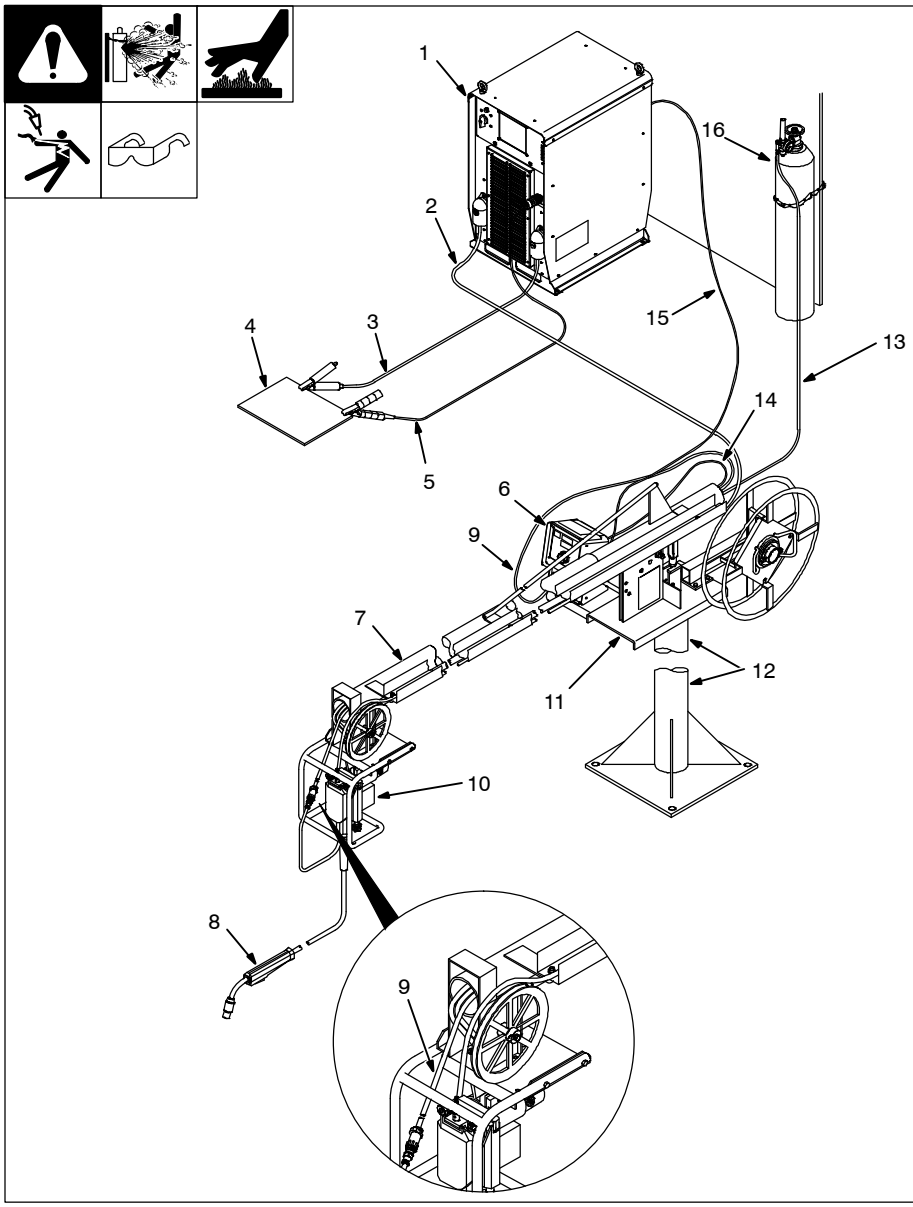
Tools Needed:



3/8 in.

152 323-C

5-6. Equipment Connection Diagram



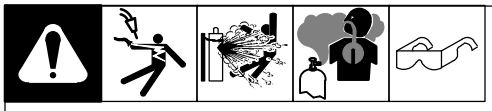
1 Welding Power Source
2 Positive (+) Weld Cable
3 Negative (–) Weld Cable
4 Workpiece
5 Voltage Sensing Lead (Optional)

☞ *Positive (+) voltage sensing lead is contained in the motor cable.*

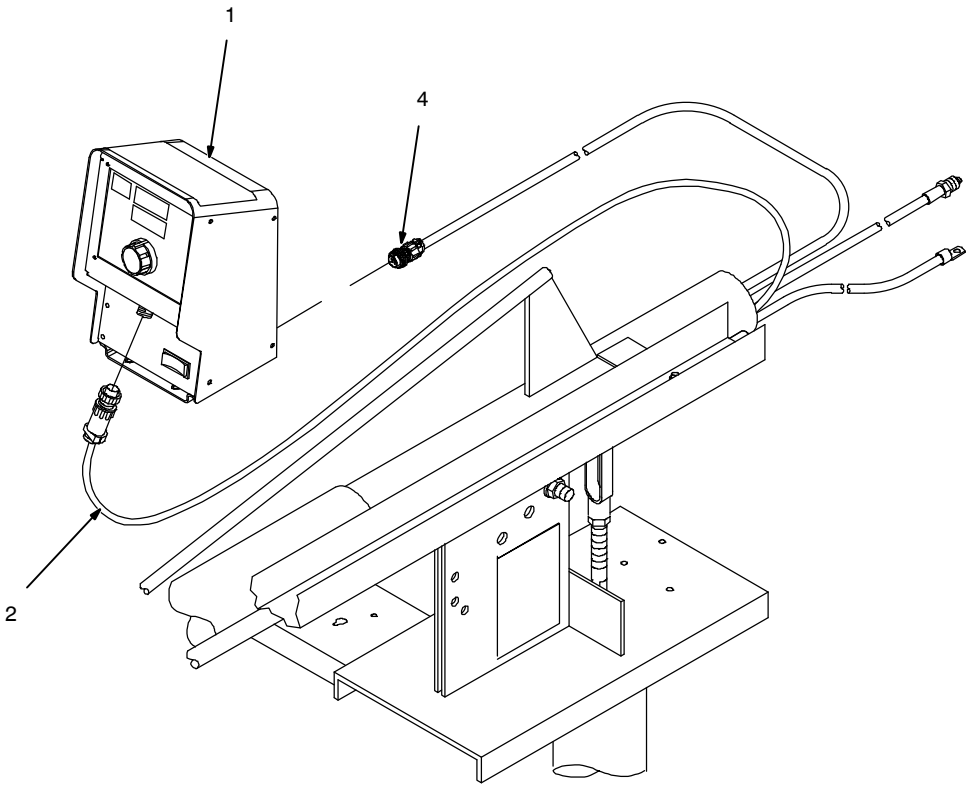
6 ROI Control Box
7 Boom
8 Gun
9 Trigger Connection
10 Shielding Gas Valve
11 Swivel
12 Pipe Post And Base
13 Gas Hose
14 Motor Control/Shielding Gas Valve Cable
15 Network Feeder Cable
16 Gas Supply And Regulator (Customer Supplied)

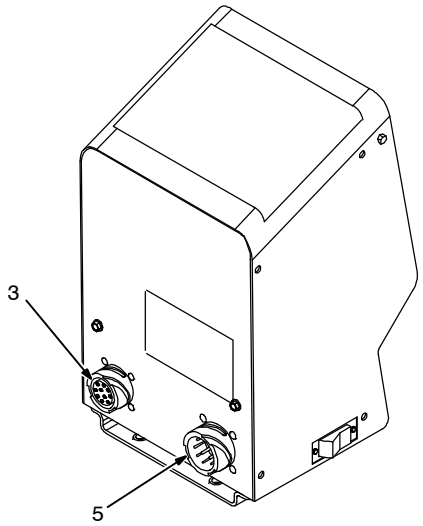
803 698-F

5-7. Remote Operator Interface Connections



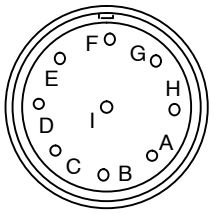
1 Remote Operator Interface
2 Trigger Cable
3 9-Pin Network Receptacle
4 Motor Control/Shielding Gas Valve Control Cable
5 Motor Control/Shielding Gas Valve Receptacle



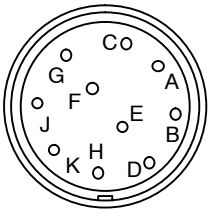


Ref. 803 697-F / Ref. 803 695-A

5-8. 9-Pin Network Receptacle Information

REMOTE 9	Pin	Pin Information
	A	Capacitor C1 to ground
	B	Shield
	C	Volt sense
	D	Can low
	E	Can high
	F	+24 volts DC common
	G	+ 24 volts DC
	H	Motor voltage –40 volts
	I	Motor voltage +40 volts

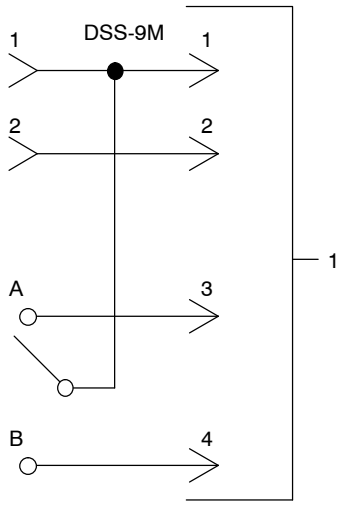
5-9. 10-Socket Motor Receptacle Information

	Socket	Socket Information
	A	Not used
	B	Motor common
	C	+1.75 volts DC ±0.2 volts when tach A encoder is rotating
	D	+1 volt DC per 35 IPM with respect to pin B
	E	Tach common
	F	Gas valve common
	G	Electrode sense
	H	+5 volts DC tach
	J	+40 volts DC gas valve

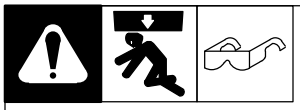
5-10. Dual Schedule Switch Option

1 Maint 2P (Maintained-Contact 2-Pole Switch)

DSS-9M Part# 041 793



5-11. Removing Safety Collar And Adjusting Boom



1 Locking Knob

Tighten knob to prevent boom movement. Loosen knob to allow boom movement. Change knob position to limit upward movement.

Pull boom down slightly and remove safety collar. Boom should balance in any position from horizontal to 60 degrees above horizontal. If necessary, adjust boom as follows:

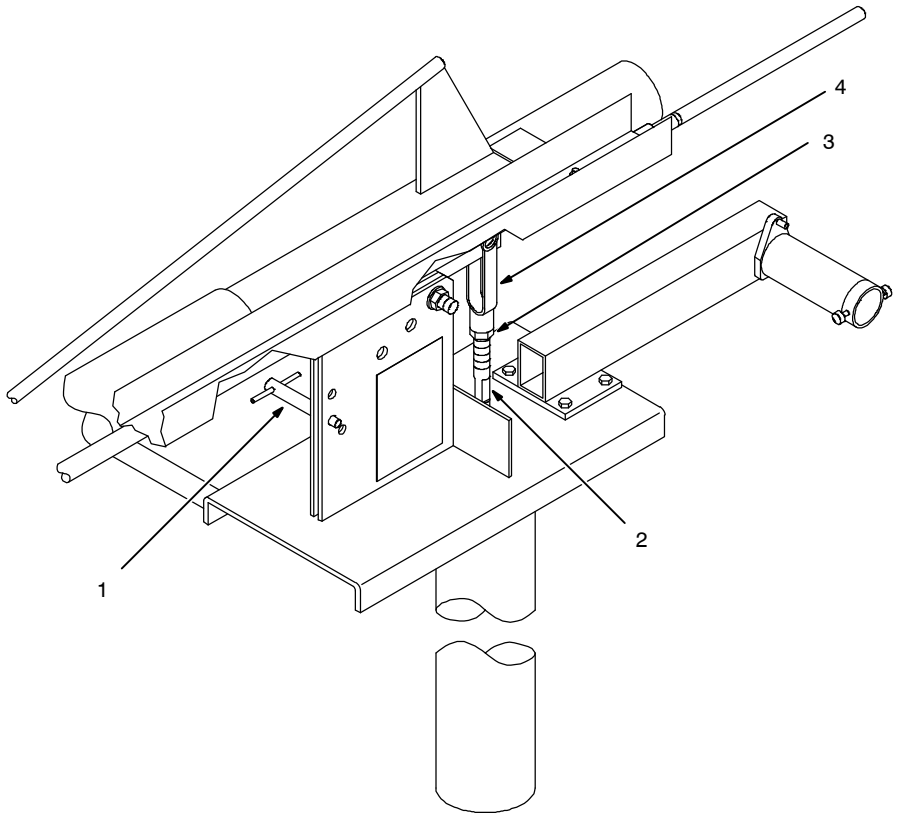
2 Threaded Rod

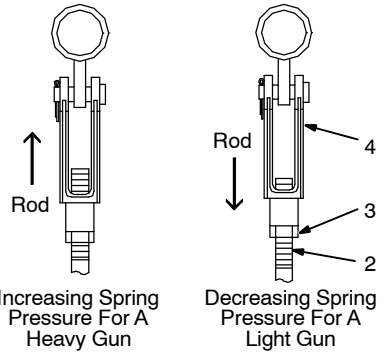
3 Jam Nut

Loosen jam nut and turn threaded rod until boom balances. Tighten jam nut. Be sure several full threads are through yoke to prevent boom falling.

4 Yoke

Retain safety collar for use in disassembling or moving boom.





Increasing Spring Pressure For A Heavy Gun

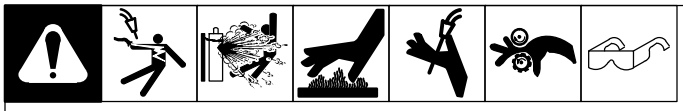
Decreasing Spring Pressure For A Light Gun

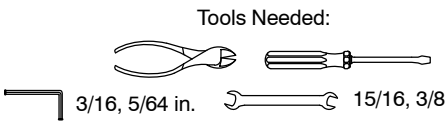
Tools Needed:

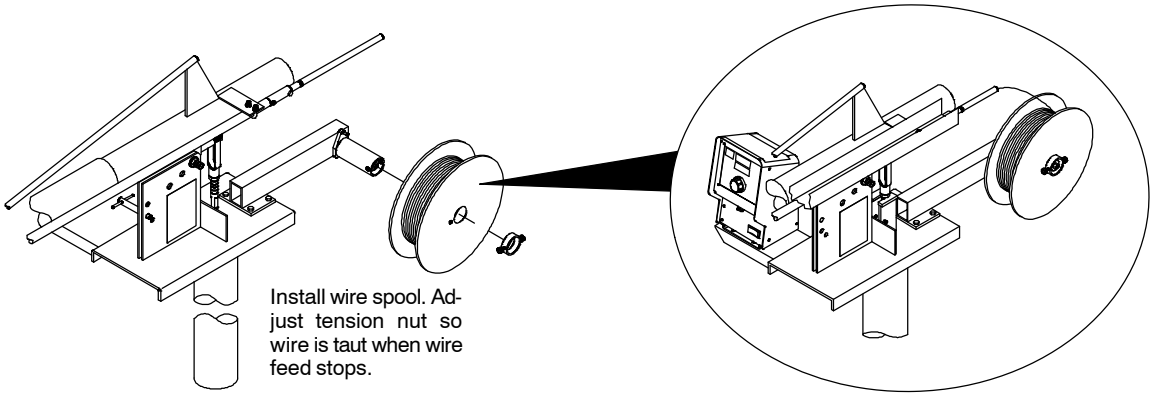
1-1/8 in.

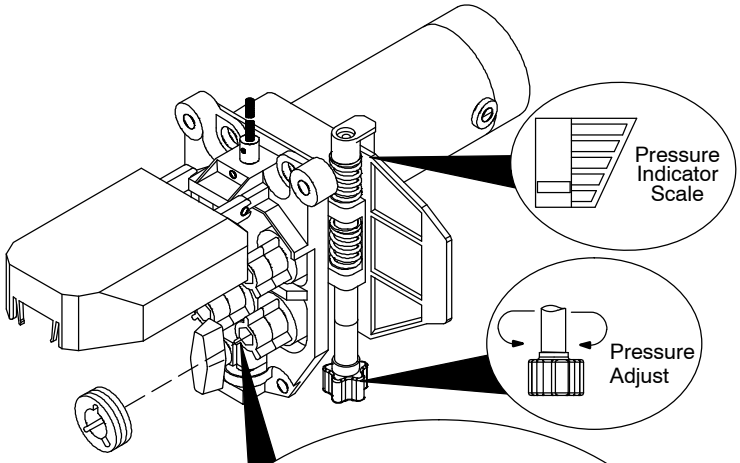
803 807-B

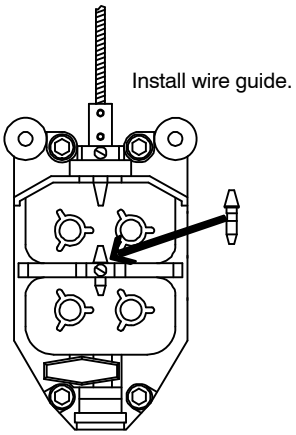
5-12. Installing And Threading Welding Wire

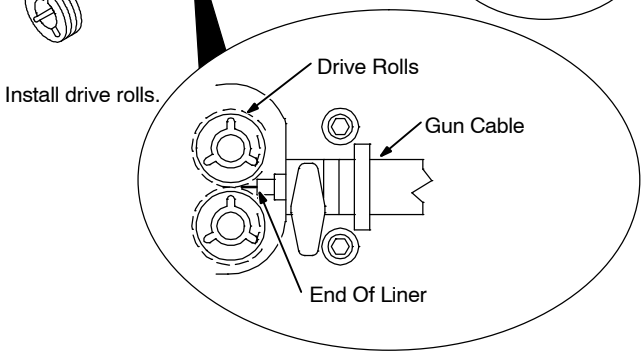


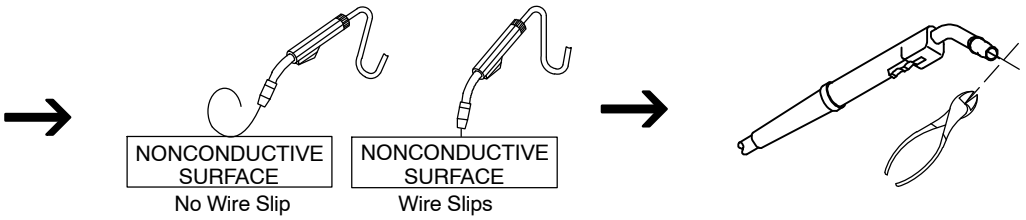












☞ *Be sure that outlet cable has proper size liner for the welding wire size.* ***When installing gun, position liner extending from outlet wire guide as close as possible to drive rolls without touching.***

Install gun. Lay gun cable out straight. Cut off end of wire. Push wire through guides up to drive rolls; continue to hold wire. Press Jog button to feed wire out gun.

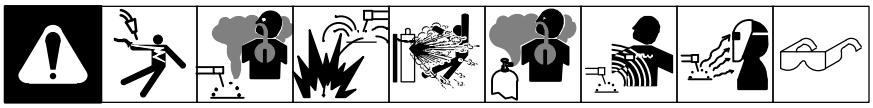
☞ *For soft wire or small diameter stainless steel wire, reduce drive roll pressure on the rear roll to half that of the front rolls.*

☞ To adjust drive roll pressure, hold nozzle about 2 in (51 mm) from nonconductive surface and press gun trigger to feed wire against surface. Tighten knob so wire does not slip. Do not overtighten. If contact tip is completely blocked, wire should slip at the feeder (see pressure adjustment above).Cut wire off. Close cover.

Ref. 152 648-A / Ref. 803 770-C / Ref. 137 391-A / 802 954 / Ref. S-0627-A

SECTION 6 – OPERATION

6-1. Operational Terms



The following is a list of terms and their definitions as they apply to the interface unit in the wire feeder:

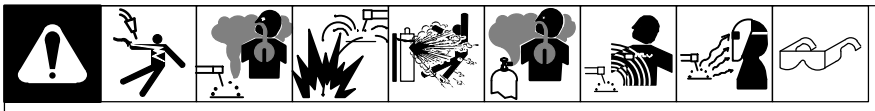
General Terms:

AccuCurve	CV Pulse process using a pulse waveform with modified curves at particular locations within the waveform. Has a distinguished change in arc characteristics. Front panel display is ACCU – CURV.
Accu-pulse	Pulse process utilizing constant current ramps with constant voltage control of peaks and backgrounds. Adaptive response is controlled by peak and minimum current levels. Benefits are shorter arc lengths, better puddle control, more tolerant of tip-to-work variation, less audible noise, no arc wandering, allows weld to fill in at toes increasing travel speed and deposition, and more tolerant to poor fit up and gaps.
Accuspeed (Optional)	CV Pulse process designed for high travel speeds. Typically used in Robotic applications. Arc is designed to be tight and fast. Front panel display is ACCU – SPED.
Adjust	Control knob used to change or set parameters and functions.
Amps	Indicates average amperage while welding and 3 seconds hold value at end of weld.
Arc Adjust	Term used to represent arc length adjustments in pulse programs. Increasing Arc Adjust increases the actual arc length. Likewise, decreasing arc adjust shortens arc length. Arc Adjust is replaced by volts in MIG programs.
Arc Control	Allows setting inductance in MIG mode. In pulse and Accu-pulse mode, this adjustment changes the arc cone by adjusting the preprogrammed factory pulse data. In RMD (optional), this control affects the arc in much the same way as inductance.
Arc Length	Distance from end of wire electrode to workpiece.
Auto Thread	Method of jogging wire without holding jog or trigger switch. Pressing Jog and Retract simultaneously will automatically feed wire. Default setting is 192 at a feed rate of 700 ipm (these values can be changed using a PDA with File Management software). Pressing jog, purge, or trigger switch will terminate the auto-threading feature.
Crater	Allows setting of voltage/arc adjust, wire feed rate, and time value for arc ends.
DS (Dual Schedule)	Dual Schedule allows selecting a pair of programs that can be used together.
Feeder Set Up	Allow selection of Sequence and trigger functions.
Gas Type	Selection of shielding gas being used in application.
Inductance	In short circuit GMAW welding, an increase in inductance will decrease the number of short circuit metal transfers per second (provided no other changes are made) and increase the arc-on time. The increased arc-on time makes the welding puddle more fluid.
MIG	CV weld process with individual settings of voltage and wire speed.
Postflow	Setting a time value for gas flow after arc end.
Preflow	Setting a time value for gas flow prior to arc start.
Process	A selection made for MIG, Pulse, Accu-pulse, and RMD (optional).
Process Set Up	Selection procedure for entering program.
Program	Eight active slots for selection of various processes, wire type, and parameters.
Program Load	Enters selected program information into program slot.
Pulse	Conventional pulse program using peak, background, pulse width, frequency, and peak voltage as factory taught data. Adaptive method is controlled by frequency adjustment.
RMD (optional)	RMD refers to Regulated Metal Deposition. A precisely controlled short-circuit transfer. Benefits of RMD are well suited to thin materials, improves gap filling and spatter reduction. Provides less heat input into workpiece, minimizes distortion and allows use of larger diameter wire on thin gauge materials.
Sequence	Selecting Sequence will allow setting of preflow, start, crater, and postflow times and parameters.
Start	Provides voltage/arc adjust, wire feed rate, and time value for modified arc starts (which is only adjustable with the optional PDA with File Management/WaveWriter software).
TDS (Trigger Dual Schedule)	TDS allows the operator to select between a pair of weld programs by using the gun trigger. In TDS mode, momentarily pressing the gun trigger allows the operator to cycle between a pair of preselected weld programs.
TH (Trigger Hold)	Trigger Hold allows the operator to feed wire without continuously pressing the gun trigger. In trigger hold mode, momentarily press gun trigger, and wire will feed until gun trigger is momentarily pressed again.

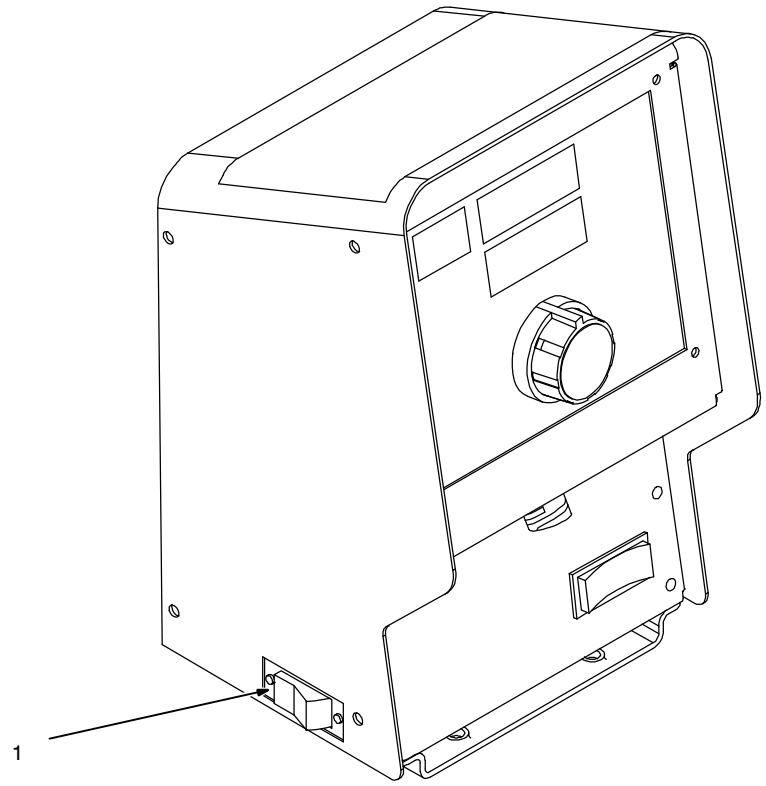
General Terms:

Time	Indicates time values being set for timed functions (e.g. Preflow, Postflow).
TPS (Trigger Program Schedule)	TPS allows the operator to select weld programs by using the gun trigger. In TPS mode, momentarily pressing the gun trigger allows the operator to cycle through preselected weld programs up to a total of 8 programs.
Trigger Control	Selecting Trigger Control allows activating trigger functions such as DS, TH, 4T, TDS, and TPS.
Volts	Preset voltage in MIG mode at idle, actual voltage while welding, and 3 seconds hold value at end of weld.
WFS	Term used to represent wire feed speed. In MIG mode, wire feed setting is independent of voltage setting. In pulse, Accu-pulse, and RMD (optional) adjusting wire feed speed also increases power level on wire electrode (one knob control).
Wire Type	Selection of wire type by alloys and classification.
4T	4T allows the operator to select between weld parameters and crater parameters using the gun trigger. Crater time must be set for at least 0.2 seconds to make this function operational. If gun trigger is released during welding, unit goes into trigger hold, then pressing and holding trigger again causes unit to stay in crater until trigger is released and crater parameter times out.

6-2. Power Switch



1 Power Switch



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SECTION 7 – ELECTRICAL DIAGRAM

⚠ WARNING

ELECTRIC SHOCK HAZARD

- Do not touch live electrical parts.
- Disconnect input power or stop engine before servicing.
- Do not operate with covers removed.
- Have only qualified persons install, use, or service this unit.

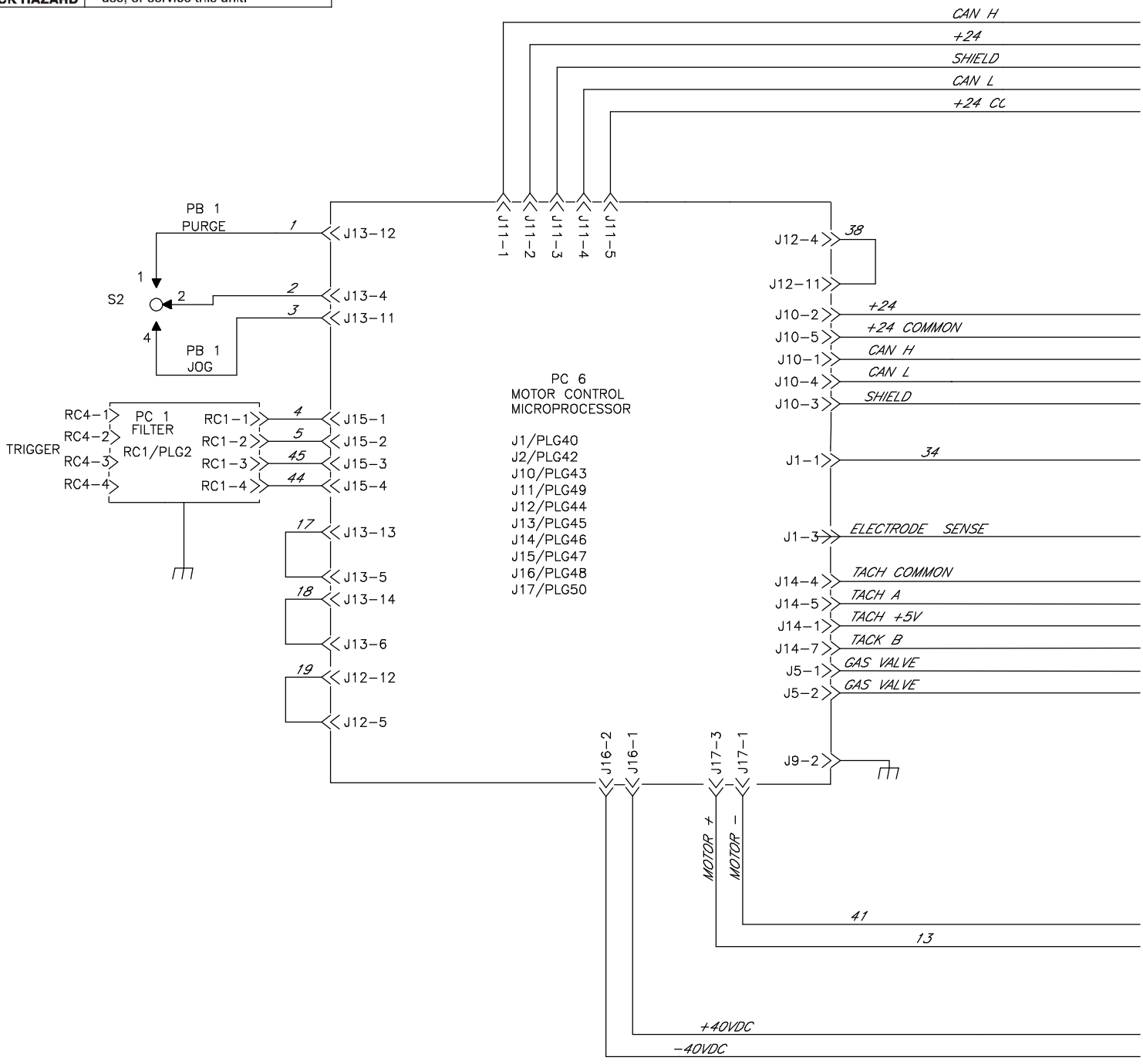
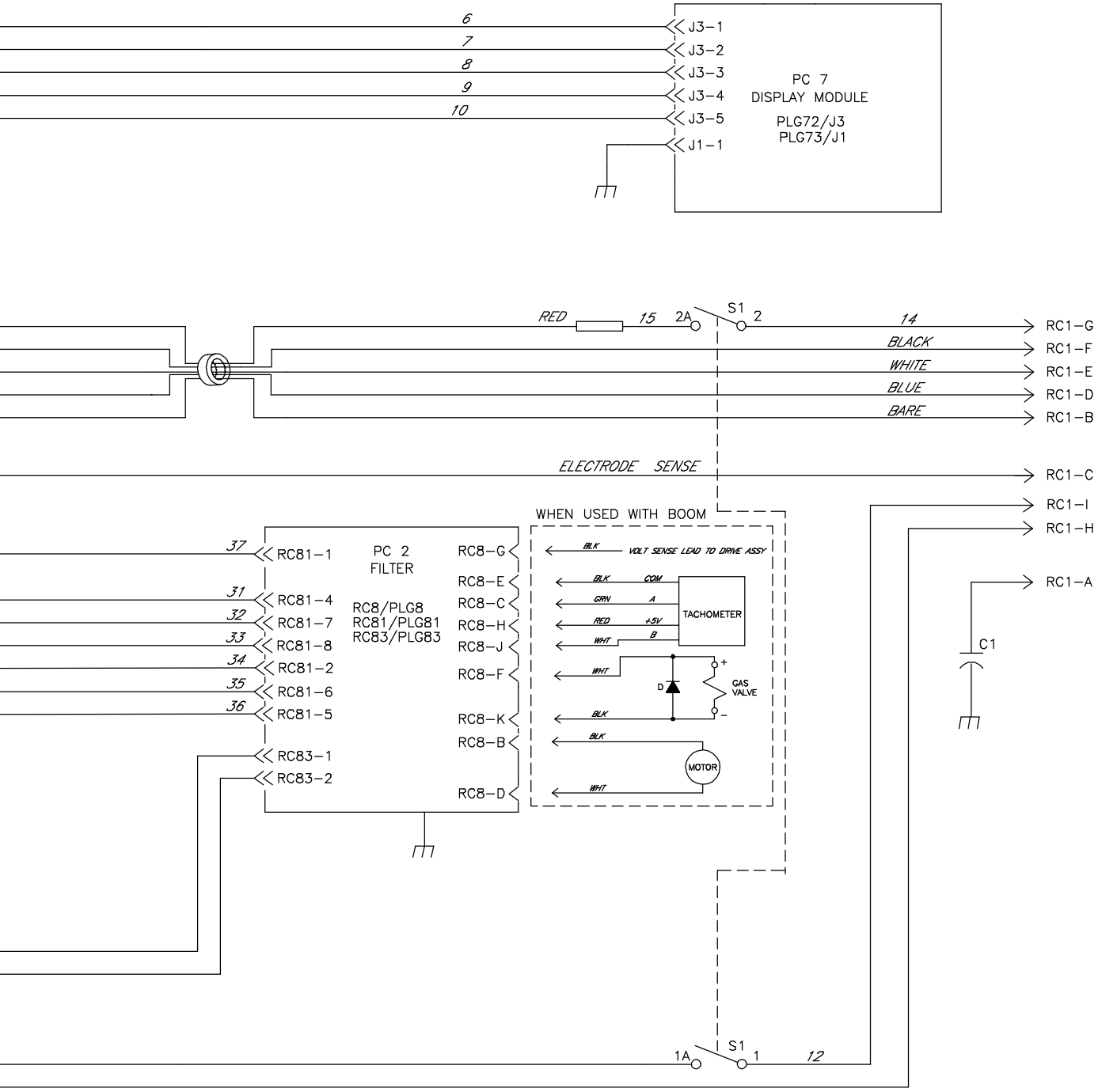
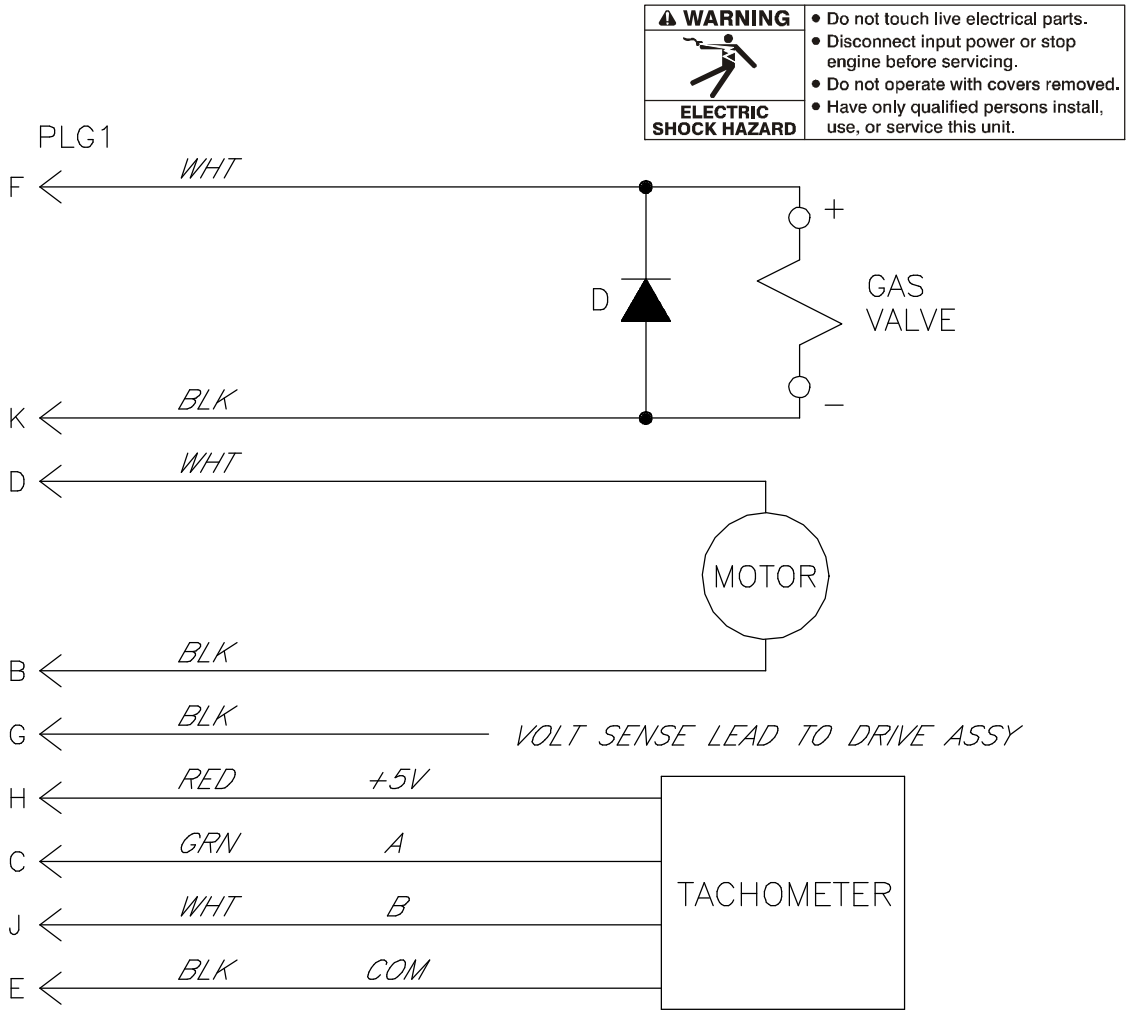


Figure 7-1. Circuit Diagram


6
7
8
9
10
J3-1
J3-2
J3-3
J3-4
J3-5
J1-1
PC 7
DISPLAY MODULE
PLG72/J3
PLG73/J1
RED
15
2A
S1
2
14
BLACK
WHITE
BLUE
BARE
RC1-G
RC1-F
RC1-E
RC1-D
RC1-B
ELECTRODE SENSE
RC1-C
RC1-I
RC1-H
RC1-A
WHEN USED WITH BOOM
37
31
32
33
34
35
36
RC81-1
RC81-4
RC81-7
RC81-8
RC81-2
RC81-6
RC81-5
RC83-1
RC83-2
PC 2
FILTER
RC8/PLG8
RC81/PLG81
RC83/PLG83
RC8-G
RC8-E
RC8-C
RC8-H
RC8-J
RC8-F
RC8-K
RC8-B
RC8-D
BLK
VOLT SENSE LEAD TO DRIVE ASSY
BLK
COM
GRN
A
RED
+5V
WHT
B
TACHOMETER
WHT
D
+
GAS
VALVE
-
BLK
BLK
MOTOR
WHT
C1
1A
S1
1
12



261 290-A

Figure 7-2. Circuit Diagram For Drive Motor

Notes

☞ *Hardware is common and not available unless listed.*

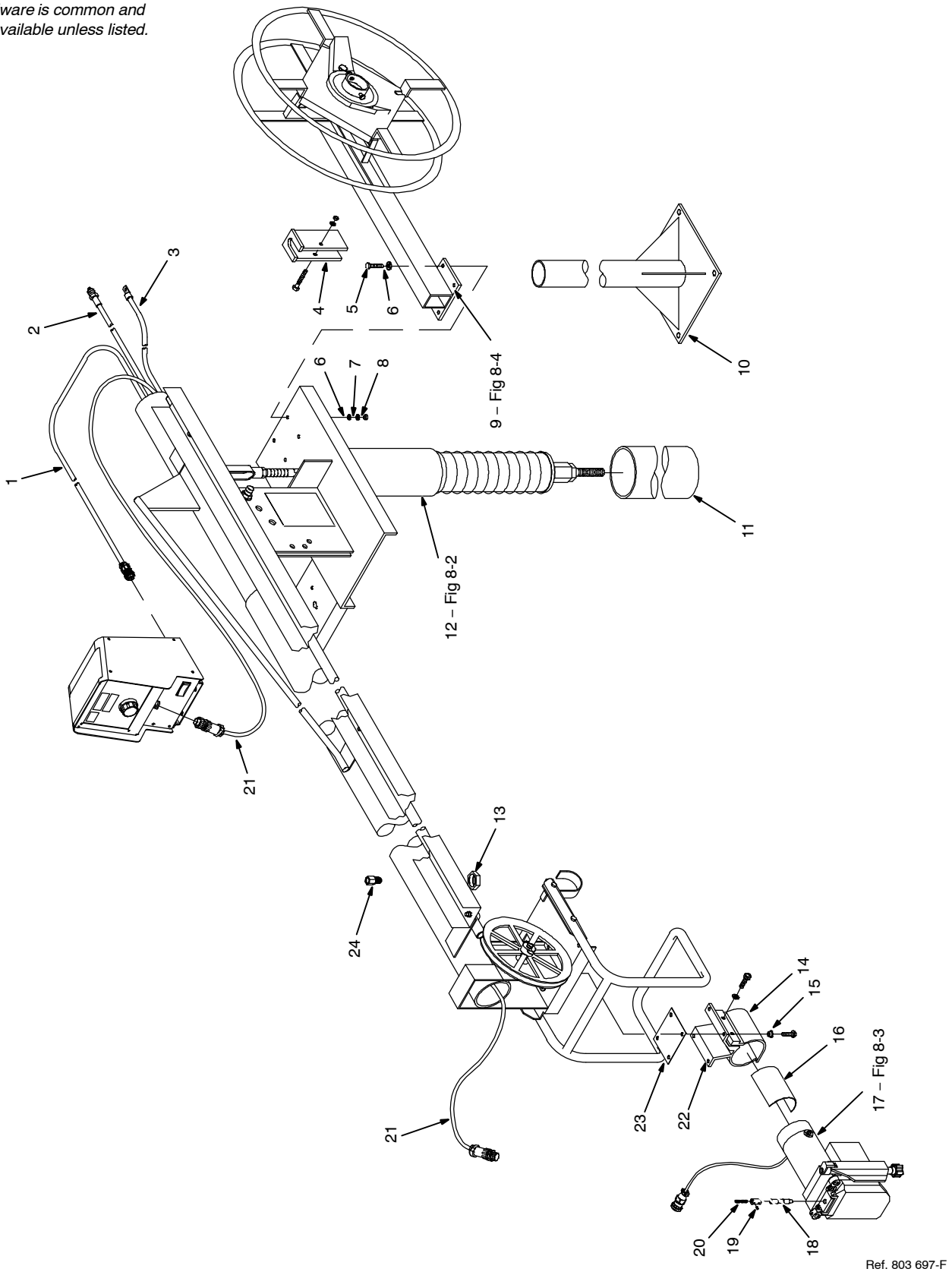


Figure 8-1. Main Assembly

Item No.	Dia. Mkgs.	Part No.	Description	Quantity Model 8	12	16

Figure 8-1. Main Assembly

1		194 802	Cable, Motor/Gas 40V DC 20ft (Including)	1	1	1
		202 968	Connector, Circ 97/Met 10 Pin Size 18 Plug Sldr	1	1	1
		202 969	Connector, Circ 97/Met 10 Skt Sz18 Rcpt Cbl Sldr	1	1	1
		203 894	Cable, Port No. 16-12 12/C	20ft	20ft	20ft
2		139 600	Hose, Gas	1	1	
2		139 599	Hose, Gas			1
3		600 324	Cable, Weld Cop Strd No. 4/0 (Order By ft)	26ft	26ft	30ft
4		262 403	Bracket, Spring Retaining	1	1	1
5		132 053	Screw, Cap Stl Hexhd .375-16 x 1.500 Lg	4	4	4
6		602 243	Washer, Flat Stl Std .375	8	8	8
7		602 213	Washer, Lock Stl Split .375	4	4	4
8		601 872	Nut, Stl Hex Full .375-16	4	4	4
9		Fig 8-4	Support, Hub & Reel	1	1	1
10		149 838	Pipe Post, 4ft w/Base Or (Optional)	1	1	
10		149 839	Pipe Post, 6ft w/Base (Optional)	1	1	
10		078 264	Pipe Post, 4ft w/Base Or (Optional)			1
10		079 216	Pipe Post, 6ft w/Base (Optional)			1
11		075 078	Pipe Post, 4ft w/o Base Or (Optional)	1	1	1
11		079 217	Pipe Post, 6ft w/o Base (Optional)	1	1	1
12		Fig 8-2	Boom Assembly	1	1	1
13		605 227	Nut, Nyl Hex Jam .750 NPST	1	1	1
14		156 243	Clamp, Motor Top	1	1	1
15		159 360	Insulator, Screw Machine	4	4	4
16		145 639	Strip, Buna N Compressed Sheet .062 x 4.000sq	1	1	1
17		194 801	Motor, AA40G Fig 8-3	1	1	1
18		157 295	Guide, Monocoil	1	1	1
19		604 612	Screw, Set Stl Sch 8-32 x .125 Cup Point	2	2	2
20		139 633	Liner, Monocoil Inlet Wire	1	1	1
21		149 251	Cable, Trigger 17 ft (Including)	1	1	
21		149252	Cable, Trigger 21 ft (Including)			1
	RC13	080 328	Connector w/Sockets, Free Hanging	1	1	1
		079 531	Connector, Circ Clamp Str Rlf Size 11 Amp 206358-2	2	2	2
		605 156	Cable, Port No18 4/C (Order By ft)	17ft	17ft	21ft
	PLG6	079 878	Housing Plug & Pins, (Service Kit)	1	1	1
22		235 932	Clamp, Motor Base	1	1	1
23		159 647	Insulator, Motor Clamp	1	1	1
24		211 989	Fitting, W/Screen	1	1	1
		208 810	Cable, Volt Sense 50 ft	1	1	1

*Recommended Spare Parts.

To maintain the factory original performance of your equipment, use only Manufacturer's Suggested Replacement Parts. Model and serial number required when ordering parts from your local distributor.

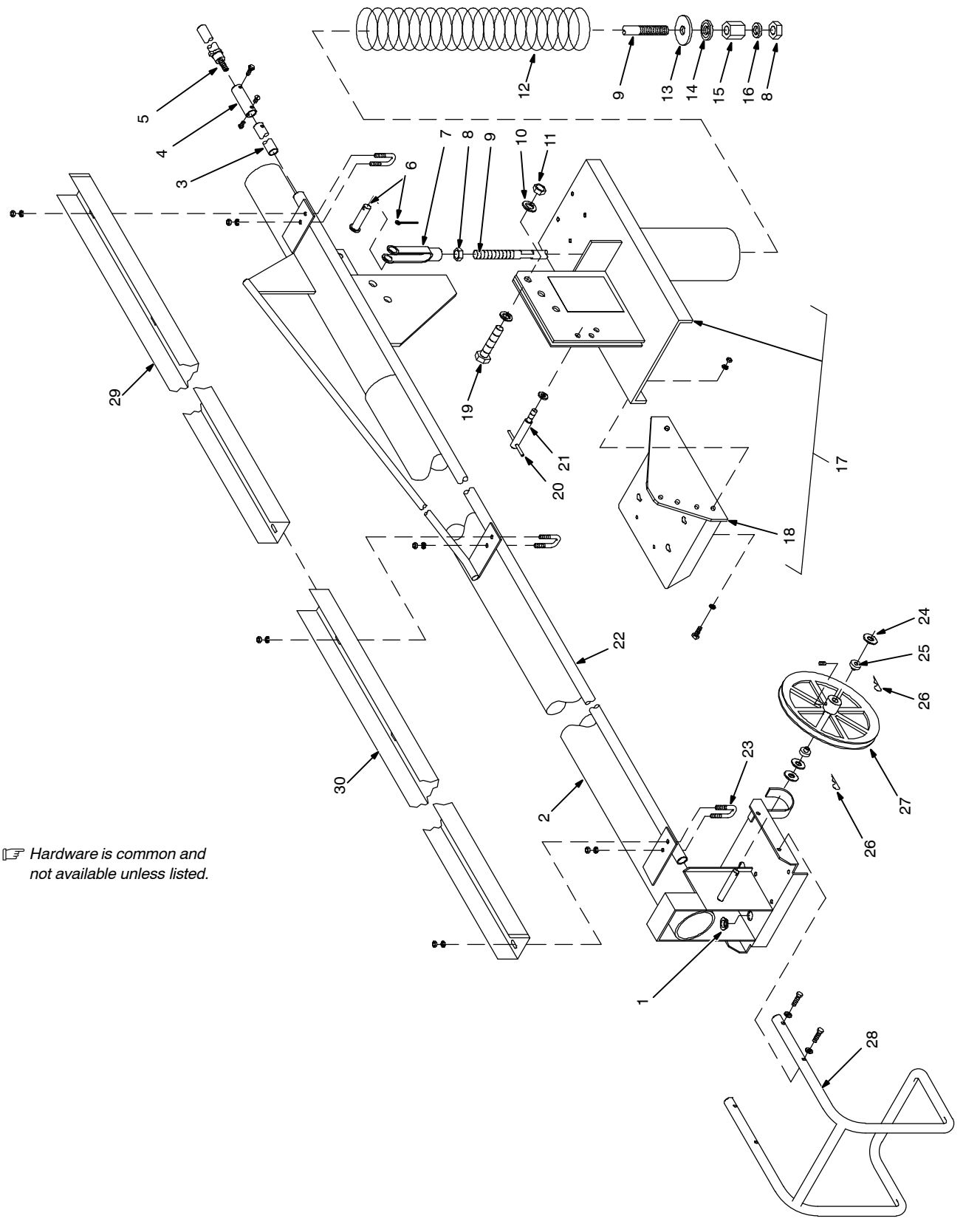


Figure 8-2. Boom Assembly

Item No.	Dia. Mkgs.	Part No.	Description	Quantity Model 8	12	16

Figure 8-2. Boom Assembly (Fig 8-1 Item 13)

1		000 527	Plug, 0.875 in.	1	1	
2		159 991	Boom, Single	1	1	
2		159 989	Boom, Single			1
3		079 665	Guide, Wire	1	1	
3		080 811	Guide, Wire			1
4		079 664	Guide, Wire Inlet	1	1	1
5		139 633	Liner, Monocoil 3/32-1/8 Wire x 15.687	1	1	1
6		073 742	Pin, Clevis .750 OD x 2.156 Lg	1	1	1
7		073 741	Clevis, .812 Yoke 6.062 Lg .750-16thd	1	1	1
8		079 029	Nut, Stl Hex Full Fnsh .750-16	2	2	2
9		075 462	Shaft, Boom Counterbalance	1	1	1
10		602 250	Washer, Flat Stl SAE .750	2	2	2
11		079 020	Nut, Stl Hex Elastic Stop .750-16	1	1	1
12		149 858	Spring, Cprsn 3.750 OD x .625 Wire x 36.000	1	1	
12		080 723	Spring, Cprsn 3.750 OD x .687 Wire x 33.750			1
13		150 258	Retainer, Spring	1	1	1
14		024 605	Bearing, Ball Thr Sgl Row .750 x 1.625 x .625	1	1	1
15		075 101	Nut, Stl Hex Special .750-16 x 1.250	1	1	1
16		079 030	Washer, Lock Stl Ext Tooth .750	1	1	1
17		+174 754	Base, Swivel Boom (Consisting Of)	1	1	1
		080 157	Fitting, Grease 1/8 NPT	1	1	1
18		174 688	Bracket, Mtg Control Tilt	1	1	1
		142 804	Label, Swingarc Caution Heavy Spring	1	1	1
		134 327	Label, Warning General Precautionary	1	1	1
19		073 666	Bolt, Mach Stl Hexhd .750-16 x 2.750	1	1	1
20		047 224	Knob, T-Bar .500-13 Thd	1	1	1
21		602 246	Washer, Flat Stl Std .500	1	1	1
22		236 033	Pipe, Plstc .500 x 85.750	1		
22		079 667	Pipe, Plstc .500 x 133.750		1	
22		080 812	Pipe, Plstc .500 x 181.750			1
23		079 632	Bolt, U Stl .250-20 x .875 Wide x 1.375 Deep	4	4	5
24		602 243	Washer, Flat Stl Std .375	3	3	3
25		079 622	Washer, Shldr .381 ID x .750 OD	2	2	2
26		010 313	Pin, Cotter Hair .072 x 1.437	2	2	2
27		079 621	Pulley, V Sgl Grv	1	1	1
28		139 336	Guard, Motor Protector	1	1	1
29		237 442	Channel, Harness Wire 85.5 in. 2.188 in. Wide	1		
29		220 330	Channel, Harness Wire 67 in. 2.093 in. Wide		1	1
30		220 331	Channel, Harness Wire 67 in. 2.125 in. Wide		1	2
		149 322	Clamp, Hose .405 – .485clp	2	2	1

*Recommended Spare Parts.

+When ordering a component originally displaying a precautionary label, the label should also be ordered.

To maintain the factory original performance of your equipment, use only Manufacturer's Suggested Replacement Parts. Model and serial number required when ordering parts from your local distributor.

See Table 8-1
Drive Roll & Wire Guide Kits

☞ *Hardware is common and not available unless listed.*

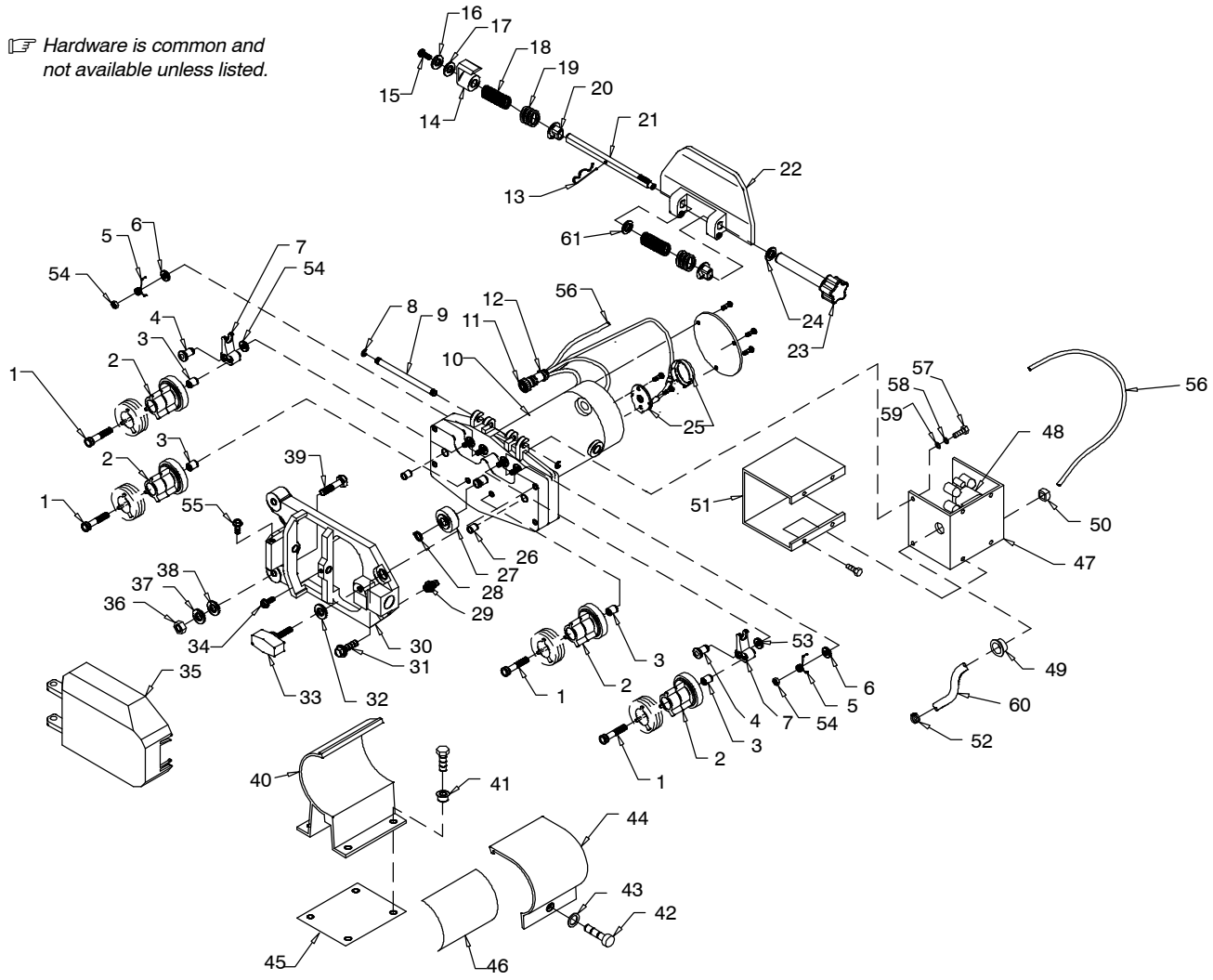


Figure 8-3. Drive Assembly, Wire

Item No.	Dia. Mkgs.	Part No.	Description	Quantity
			Figure 8-3. Drive Assembly, Wire (Fig 8-1 Item 19)	
1		010 668	Screw, Cap Stl Sch .250-20 x 1.500	4
2		172 075	Carrier, Drive Roll w/Comp	4
3		149 962	Spacer, Carrier Drive Roll	4
4		149 486	Pin, Rotation Arm Rocker	2
5		163 281	Spring, Pressure Arm Retaining LH	2
6		165 799	Washer, Flat .257 ID x 0.615 OD x .091t Stl Pld	2
7		132 750	Arm, Pressure	2
8		133 493	Ring, Retaining Ext .250 Shaft x .025thk	2
9		133 350	Pin, Hinge	1
10		199 446	Motor, Gear 1/8hp 40VDC 500 RPM	1
11		202 970	Connector, Circ 97/Met 10 Pin Size 18 Plug Crimp 'X' Rot	1
12		200 544	Conn, Circ 97/Met Clamp Str Size 18	1
13		182 415	Pin, Cotter Hair	1

*Recommended Spare Parts.

+When ordering a component originally displaying a precautionary label, the label should also be ordered.

To maintain the factory original performance of your equipment, use only Manufacturer's Suggested Replacement Parts. Model and serial number required when ordering parts from your local distributor.

Item No.	Dia. Mkgs.	Part No.	Description	Quantity
			Figure 8-3. Drive Assembly, Wire (Fig 8-1 Item 19)	
14		137 248	Spring, Indicator	1
15		129 351	Screw, Mach Stl Rdh 8-32 x .500	1
16		602 200	Washer, Lock Stl Split No. 8	1
17		604 772	Washer, Flat Stl SAE No. 8	1
18		182 156	Spring, Cprsn	2
19		182 155	Spring	2
20		132 746	Bushing, Spring	2
21		203 633	Shaft, Spring	1
22		132 747	Carrier, Shaft	1
23		203 640	Knob, w/Extension	1
24		133 739	Washer, Flat Buna .375 ID x .625 OD x .062thk	1
25			†Encoder Assy, Quad 500 CPR 5 VDC Shaftless w/Pins (including)	1
		261 292	Encoder, Differential E8p 500cpr 1/4” Bore	1
		261 291	Cbl Assy, Shielded 4 Wire 18” Axcess Encoder w/Pins	1
26		167 387	Spacer, Locating	2
27		168 825	Drive, Pinion 24 Pitch	1
28		133 308	Ring, Retaining Ext .375 Shaft x .025thk	1
29		149 959	Fitting, Brs Barbed M 3/16tbg x .312-24	1
30		179 265	Adapter, Gun/Feeder LH	1
31		108 940	Screw, Cap Stl Hexhd .250-20 x .750	4
32		604 538	Washer, Flat Stl SAE .312	1
33		151 437	Knob, Plstc T 1.125 Lg x .312-18 x 1.500	1
34		128 237	Screw, Mach Stl Hexwhd 10-32 x .500	2
35		179 263	Cover, Drive Roll	1
36		601 872	Nut, Stl Hex Full Fnsh .375-16	1
37		602 213	Washer, Lock Stl Split .375	1
38		010 910	Washer, Flat .406 ID x 0.812 OD x .065t Stl Pld Ansi.375	1
39		601 966	Screw, Cap Stl Hexhd .375-16 x 1.250	1
40		235 932	Clamp, Motor Base	1
41		159 360	Insulator, Screw Machine	4
42		604 535	Screw, 312−18 x 1.50 Hex Hd−Pln Gr5 Pld	1
43		231 232	Washer, Flat .344 ID x 0.688 OD x .065t Stl Pld Ansi.312	3
44		156 243	Clamp, Motor Top	1
45		159 647	Insulator, Motor Clamp	1
46		145 639	Strip, Buna-N .062 x 3.000 x 4.000	1
47		178 344	Bracket, Gas Valve	1
48		228 035	Valve, 34VDC 1way .750-14 THD 2mm ORF 100psi	1
		220 805	Nut, 750-14 NPS 1.48hex .41h Nyl	1
49		010 493	Bushing, Snap-In Nyl .625 ID x .875mtg Hole	1
50		020 577	Bushing, Strain Relief	1
51		186 182	Cover, Solenoid Amd−4g	1
52		149 332	Clamp, Hose	2
53		150 520	Spacer, Rotation Pin	2
54		163 282	Nut, 250−28 .37hex .25h Stl	2
55		604 224	Screw, 250−20 x .75 Hex Whd .50d Stl Pld Slf Fmg Tap−Rw	2
56		200 221	Cable, Gas	1
57		089 799	Screw, 250−20 x .50 Hex Whd .61 D Gr5 Pld	2
58		602 207	Washer, Lock .255 ID x 0.489 OD x .062t Stl Pld Split.250	2
59		602 241	Washer, Flat .281 ID x 0.625 OD x .065t Stl Pld Ansi .250	2
60		134 834	Hose, SAE .187 ID x .410 OD x Coil	0.916 ft
61		182 414	Washer, Flat .406 ID x 0.73 OD x .065 T Stl Pld 3/8type B	1

*Recommended Spare Parts.

†Have nearest Factory Authorized Service Agent replace encoder.

To maintain the factory original performance of your equipment, use only Manufacturer’s Suggested Replacement Parts. Model and serial number required when ordering parts from your local distributor.

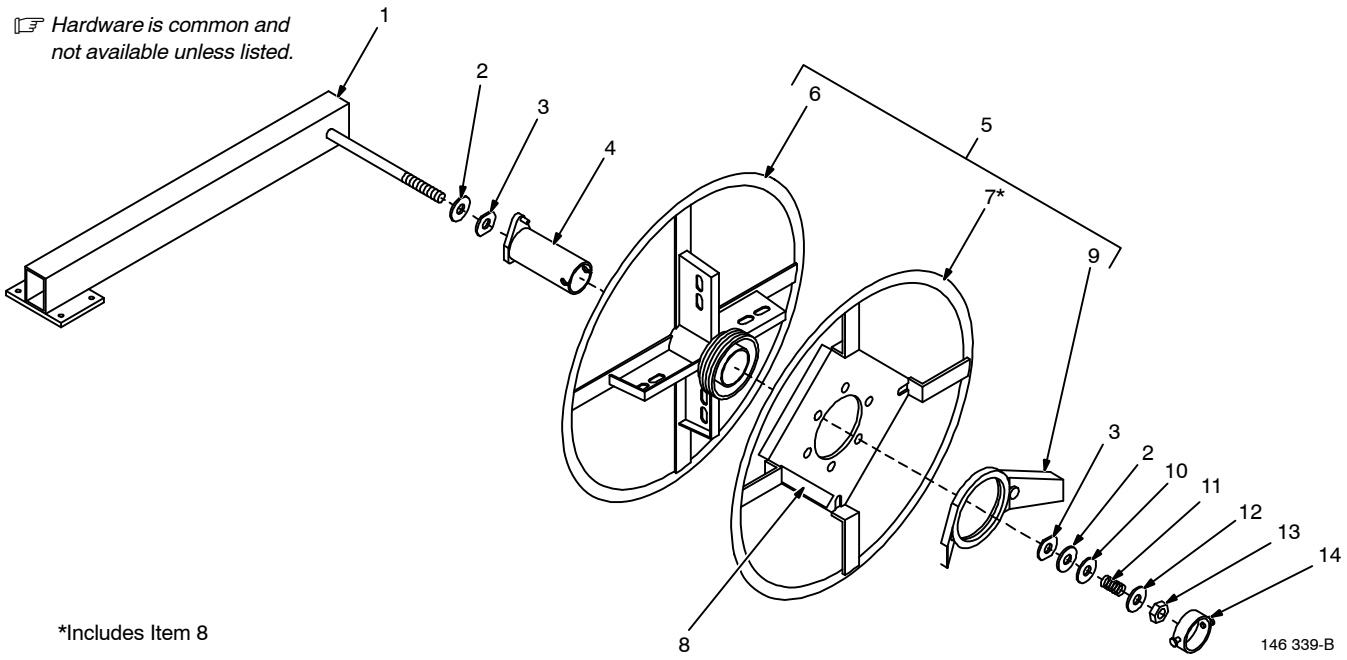


Figure 8-4. Support, Hub & Reel

Item No.	Part No.	Description	Quantity
		Figure 8-4. Support, Hub & Reel (Fig 8-1 Item 10)	
1	142 399	Support, Reel	1
2	010 191	Washer, Fbr .656 ID x 1.500 OD x .125thk	2
3	058 628	Washer, Brake Stl	2
4	058 428	Hub, Spool	1
5	♦108 008	Reel, Wire 60 lb (Optional) (Consisting Of)	1
6	124 900	Support, Reel Spool	1
7	+168 104	Retainer, Spool Support (Consisting Of)	1
8	166 594	Label, Caution Falling Wire Reel Can Cause Damage	1
9	168 103	Nut, Spanner Spool Support	1
10	057 971	Washer, Flat Stl Keyed 1.500 Dia x .125thk	1
11	010 233	Spring, Cprsn .970 OD x .120 Wire x 1.250	1
12	605 941	Washer, Flat Stl .640 ID x 1.000 OD x 14ga Thk	1
13	136 684	Nut, Stl Slflkg Hex Reg .625-11 w/Nylon Insert	1
14	058 427	Ring, Retaining Spool	1

♦OPTIONAL

*Recommended Spare Parts.

+When ordering a component originally displaying a precautionary label, the label should also be ordered.

To maintain the factory original performance of your equipment, use only Manufacturer's Suggested Replacement Parts. Model and serial number required when ordering parts from your local distributor.

Table 8-1. Drive Roll And Wire Guide Kits

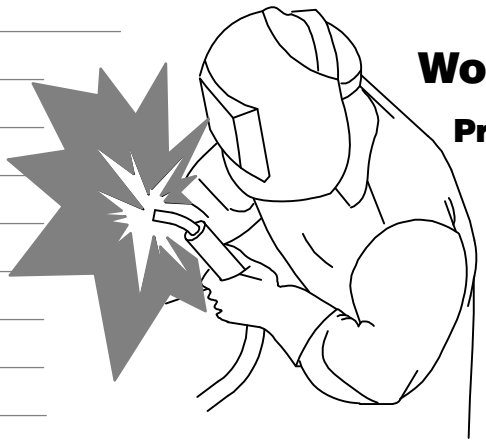
	"V" GROOVE FOR HARD WIRE	"U" GROOVE FOR SOFT–SHELLED CORED WIRES	"V" KNURLED FOR HARD–SHELLED CORED WIRES	"U" COGGED FOR EXTREMELY SOFT WIRE OR SOFT–SHELLED CORED WIRES	"U" GROOVE FOR ALUMINUM WIRES CONTAINS NYLON WIRE GUIDES
WIRE SIZE					
.023/.025 in. (0.6 mm)	**151024**				
.030 in. (0.8 mm)	**151025**				
.035 in. (0.9 mm)	**151026**		**151052**		**243233**
.040 in. (1.0 mm)	**161190**				
.045 in. (1.1/1.2 mm)	**151027**	**151037***	**151053**	**151070**	**243234***
.052 in. (1.3/1.4 mm)	**151028**	**151038**	**151054**	**151071**	
1/16 in. (1.6 mm)	**151029**	**151039**	**151055**	**151072**	**243235**
.068/.072 in. (1.8 mm)			**151056**		
5/64 in. (2.0 mm)		**151040**	**151057**	**151073**	
3/32 in. (2.4 mm)		**151041**	**151058**	**151074**	
7/64 in. (2.8 mm)		**151042**	**151059**	**151075**	
1/8 in. (3.2 mm)		**151043****	**151060****	**151076****	
*Accommodates .045 and .047 (3/64 in) wire **Requires a low –speed wire feeder					

Wire Guides			**Nylon Wire Guides for Feeding Aluminum Wire**		
Wire Sizes	Inlet Guide	Intermediate Guide	Wire Size	Inlet Guide	Intermediate Guide
.023 to .040 in. (0.6 to 1.0mm)	221030	149518	.035 in. (0.9mm)	221912	242417
.045 to .052 in. (1.1 to 1.4mm)	221030	149519	.047 in. (1.2mm)	221912	205936
1/16 to 5/64 in. (1.6 to 2mm)	221030	149520	1/16 in. (1.6mm)	221912	205937
3/32 to 7/64 in. (2.4 to 2.8mm)	229919	149521			
1/8 in. (3.2mm)	229919	149522			

Notes

Notes

Notes



Work like a Pro!

Pros weld and cut safely. Read the safety rules at the beginning of this manual.

Warranty Questions?

Call
1-800-4-A-MILLER
for your local
Miller distributor.

Your distributor also gives you ...

Service
You always get the fast, reliable response you need. Most replacement parts can be in your hands in 24 hours.

Support
Need fast answers to the tough welding questions? Contact your distributor. The expertise of the distributor and Miller is there to help you, every step of the way.

Miller

TRUE BLUE® WARRANTY

Effective January 1, 2013
(Equipment with a serial number preface of MD or newer)

This limited warranty supersedes all previous Miller warranties and is exclusive with no other guarantees or warranties expressed or implied.

LIMITED WARRANTY – Subject to the terms and conditions below, Miller Electric Mfg. Co., Appleton, Wisconsin, warrants to its original retail purchaser that new Miller equipment sold after the effective date of this limited warranty is free of defects in material and workmanship at the time it is shipped by Miller. THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS.

Within the warranty periods listed below, Miller will repair or replace any warranted parts or components that fail due to such defects in material or workmanship. Miller must be notified in writing within thirty (30) days of such defect or failure, at which time Miller will provide instructions on the warranty claim procedures to be followed.

Miller shall honor warranty claims on warranted equipment listed below in the event of such a failure within the warranty time periods. All warranty time periods start on the delivery date of the equipment to the original end-user purchaser, and not to exceed one year after the equipment is shipped to a North American distributor or eighteen months after the equipment is shipped to an International distributor.

1. 5 Years Parts — 3 Years Labor
   * Original Main Power Rectifiers Only to Include SCRs, Diodes, and Discrete Rectifier Modules
2. 3 Years — Parts and Labor
   * Auto-Darkening Helmet Lenses (Except Classic Series) (No Labor)
   * Engine Driven Welding Generators **(NOTE: Engines are Warranted Separately by the Engine Manufacturer.)**
   * Inverter Power Sources (Unless Otherwise Stated)
   * Oxy-Fuel Cutting Torches (No Labor)
   * Plasma Arc Cutting Power Sources
   * Process Controllers
   * Semi-Automatic and Automatic Wire Feeders
   * Smith Series 30 Flowgauge, Flowmeter, and Pressure Regulators (No Labor)
   * Transformer/Rectifier Power Sources
   * Water Coolant Systems (Integrated)
3. 2 Years — Parts and Labor
   * Auto-Darkening Helmet Lenses – Classic Series Only (No Labor)
   * Fume Extractors – Filtair 400 and Industrial Collector Series
4. 1 Year — Parts and Labor Unless Specified
   * Automatic Motion Devices
   * CoolBelt and CoolBand Blower Unit (No Labor)
   * External Monitoring Equipment and Sensors
   * Field Options (NOTE: Field options are covered for the remaining warranty period of the product they are installed in, or for a minimum of one year — whichever is greater.)
   * Flowgauge and Flowmeter Regulators (No Labor)
   * RFCS Foot Controls (Except RFCS-RJ45)
   * Fume Extractors – Filtair 130, MWX and SWX Series
   * HF Units
   * ICE/XT Plasma Cutting Torches (No Labor)
   * Induction Heating Power Sources, Coolers **(NOTE: Digital Recorders are Warranted Separately by the Manufacturer.)**
   * Load Banks
   * Motor Driven Guns (except Spoolmate Spoolguns)
   * PAPR Blower Unit (No Labor)
   * Positioners and Controllers
   * Racks
   * Running Gear/Trailers
   * Spot Welders
   * Subarc Wire Drive Assemblies
   * Water Coolant Systems (Non-Integrated)
   * Weldcraft-Branded TIG Torches (No Labor)
   * Wireless Remote Foot/Hand Controls and Receivers
   * Work Stations/Weld Tables (No Labor)
5. 6 Months — Parts
   * Batteries
   * Bernard Guns (No Labor)
   * Tregaskiss Guns (No Labor)
6. 90 Days — Parts
   * Accessory (Kits)
   * Canvas Covers
   * Induction Heating Coils and Blankets, Cables, and Non-Electronic Controls
   * M-Guns
   * MIG Guns and Subarc (SAW) Guns
   * Remote Controls and RFCS-RJ45
   * Replacement Parts (No labor)
   * Roughneck Guns
   * Spoolmate Spoolguns

Miller's True Blue® Limited Warranty shall not apply to:

1. **Consumable components; such as contact tips, cutting nozzles, contactors, brushes, relays, work station table tops and welding curtains, or parts that fail due to normal wear. (Exception: brushes and relays are covered on all engine-driven products.)**
2. Items furnished by Miller, but manufactured by others, such as engines or trade accessories. These items are covered by the manufacturer's warranty, if any.
3. Equipment that has been modified by any party other than Miller, or equipment that has been improperly installed, improperly operated or misused based upon industry standards, or equipment which has not had reasonable and necessary maintenance, or equipment which has been used for operation outside of the specifications for the equipment.

MILLER PRODUCTS ARE INTENDED FOR PURCHASE AND USE BY COMMERCIAL/INDUSTRIAL USERS AND PERSONS TRAINED AND EXPERIENCED IN THE USE AND MAINTENANCE OF WELDING EQUIPMENT.

In the event of a warranty claim covered by this warranty, the exclusive remedies shall be, at Miller's option: (1) repair; or (2) replacement; or, where authorized in writing by Miller in appropriate cases, (3) the reasonable cost of repair or replacement at an authorized Miller service station; or (4) payment of or credit for the purchase price (less reasonable depreciation based upon actual use) upon return of the goods at customer's risk and expense. Miller's option of repair or replacement will be F.O.B., Factory at Appleton, Wisconsin, or F.O.B. at a Miller authorized service facility as determined by Miller. Therefore no compensation or reimbursement for transportation costs of any kind will be allowed.

TO THE EXTENT PERMITTED BY LAW, THE REMEDIES PROVIDED HEREIN ARE THE SOLE AND EXCLUSIVE REMEDIES. IN NO EVENT SHALL MILLER BE LIABLE FOR DIRECT, INDIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES (INCLUDING LOSS OF PROFIT), WHETHER BASED ON CONTRACT, TORT OR ANY OTHER LEGAL THEORY.

ANY EXPRESS WARRANTY NOT PROVIDED HEREIN AND ANY IMPLIED WARRANTY, GUARANTY OR REPRESENTATION AS TO PERFORMANCE, AND ANY REMEDY FOR BREACH OF CONTRACT TORT OR ANY OTHER LEGAL THEORY WHICH, BUT FOR THIS PROVISION, MIGHT ARISE BY IMPLICATION, OPERATION OF LAW, CUSTOM OF TRADE OR COURSE OF DEALING, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR PARTICULAR PURPOSE, WITH RESPECT TO ANY AND ALL EQUIPMENT FURNISHED BY MILLER IS EXCLUDED AND DISCLAIMED BY MILLER.

Some states in the U.S.A. do not allow limitations of how long an implied warranty lasts, or the exclusion of incidental, indirect, special or consequential damages, so the above limitation or exclusion may not apply to you. This warranty provides specific legal rights, and other rights may be available, but may vary from state to state.

In Canada, legislation in some provinces provides for certain additional warranties or remedies other than as stated herein, and to the extent that they may not be waived, the limitations and exclusions set out above may not apply. This Limited Warranty provides specific legal rights, and other rights may be available, but may vary from province to province.

Owner's Record

Please complete and retain with your personal records.

Model Name	Serial/Style Number
Purchase Date	(Date which equipment was delivered to original customer.)
Distributor	
Address	
City	
State	Zip

For Service

Contact a DISTRIBUTOR or SERVICE AGENCY near you.

Always provide Model Name and Serial/Style Number.

Contact your Distributor for:	Welding Supplies and Consumables Options and Accessories Personal Safety Equipment Service and Repair Replacement Parts Training (Schools, Videos, Books) Technical Manuals (Servicing Information and Parts) Circuit Diagrams Welding Process Handbooks To locate a Distributor or Service Agency visit www.millerwelds.com or call 1-800-4-A-Miller
Contact the Delivering Carrier to:	File a claim for loss or damage during shipment. For assistance in filing or settling claims, contact your distributor and/or equipment manufacturer's Transportation Department.

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For International Locations Visit
www.MillerWelds.com

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